RELATIONSHIP BETWEEN RISK AND RETURN IN SUKUK MARKET

AHAMED LEBBE ABDUL RAUF

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By

AHAMED LEBBE ABDUL RAUF

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ABSTRACT

This study attempts to identify the different types of risk embedded in the sukuk structure and to determine the relationship between the risks and the returns of sukuk. Data were collected from seven groups of the sukuk market from 2005 to 2013 on a periodic monthly basis and analyzed using correlation analysis and multi-regressions analysis. The test results confirm the significant influence of market risk, credit risk, operational risk and liquidity risk on the sukuk returns in different ways. The results of the analysis on the basis of maturity indicate that the longer the period of maturity the higher is the risk exposure. The results of the analysis on the rating indicate that the impact of risk is very high on lower- rated sukuk. The sectorial- based analysis indicate that the corporate sukuk return is highly exposed to risk compared to other sectors. Analysis on the Gulf countries' sukuk market indicates that the corporate sector is more exposed to risk than the financial sector. The analysis of risk impact on the basis of selected country indicates that Bahrain's sukuk market is highly exposed to risk when compared to the sukuk markets of the UAE and Malaysia. Although, there are some limitations, the findings pave ways for a number of recommendations, among others are; maintaining inflation- rate risk at an optimal level, hedging their interest- rate risk with Libor, replacing the conventional interest rate with the Libor rate, using a common currency in the Gulf region, forming a risk- steering committee to monitor and mitigate risk, formulating a common shari'ah board at the international level, and taking necessary measures to provide a conducive environment to promote secondary markets for sukuk.

Key word: market, performance, return, risk, sukuk.

ABSTRAK

Kajian ini cuba mengenal pasti pelbagai jenis risiko dalam struktur sukuk dan menentukan hubungan antara risiko dan pulangan sukuk. Data bulanan telah dikumpulkan daripada tujuh pangkalan data dari tahun 2005 sehingga 2013 secara berkalamenggunakan analisis korelasi dan regrasi berganda. Hasil ujian mengesahkan risiko pasaran, risiko kredit, risiko operasi dan risiko kecairan mempunyai kesan yang signifikan ke atas pulangan sukuk. Analisis menggambarkan bahawa risiko memberi kesan yang berbeza kepada pulangan sukuk global. Hasil analisis berdasarkan kematangan menunjukkan bahawa pasaran sukuk bertempoh matang yang lebih panjang lebih terdedah kepada risiko. Hasil analisis berdasarkan penarafan juga menunjukkan bahawa kesan risiko adalah lebih tinggi ke atas pulangan sukuk berkadar rendah (lower-rated). Hasil analisis berasaskan sektor menunjukkan pulangan sukuk korporat lebih terdedah kepada risiko berbanding sektor-sektor lain. Analisis sukuk di negara-negara Teluk menunjukkan bahawa sektor korporat lebih terdedah kepada risiko berbanding sektor kewangan. Analisis kesan risiko bagi negara-negara terpilih menunjukkan bahawa pasaran sukuk di Bahrain lebih terdedah kepada risiko berbanding pasaran sukuk di UAE dan di Malaysia. Walaupun terdapat kekangangan, wujud beberapa implikasi dapatan kajian, antaranya pengekalan risiko kadar inflasi pada tahap optimum, perlindungan nilai risiko kadar faedah dengan Libor, penggantian kadar faedah konvensional dengan kadar Libor, penggunaan mata wang yang sama di negara-negara Teluk, pembentukan jawatankuasa pemandu berkenaan risiko untuk memantau dan mengurangkan risiko, pembentukan satu lembaga syariah umum di peringkat antarabangsa, dan penyediaan persekitaran yang kondusif bagi menggalakkan pasaran sekunder untuk sukuk.

Kata kunci: pasaran, prestasi, pulangan, risiko, sukuk.

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LIST OF ABBREVIATIONS

AAOIFI	:	Accounting and Auditing Organization for Islamic Financial Institutions
ABS	:	Asset Backed Security
AESI	:	HSBC/ Nasdaq Dubai UAE US Dollar Sukuk Index
AFIB	:	Alternative Finance Investment Bond
AUM:	:	Assets Under Management
BHSI	:	HSBC/ Nasdaq Dubai Bahrain US Dollar Sukuk Index
CCASG	:	The Corporation Council for the Arab States of the Gulf
CRA	:	Credit Rating Agency
DIFX	:	Dubai Islamic Finance Exchange
DMS	:	Dimson-Marsh-Staunton
E&Y	:	Ernst & Young
EURO	:	The ***Euro*** exchange rate
FZCO	**:**	Free-Zone-Company
GCC	:	The Gulf Cooperation Council
GLS	:	Generalized Least Squares
GSKC	:	HSBC/ Nasdaq Dubai GCC Corporate US Dollar Sukuk Index
GSKF	:	HSBC/ Nasdaq Dubai GCC Financial Services US Dollar Sukuk Index (GSKF)
GSKI	:	HSBC/ Nasdaq Dubai GCC US Dollar Sukuk Index
HASI	:	HSBC/ Nasdaq Dubai Amanah US Dollar Sukuk Index
HQRs	:	Dow Jones Sukuk Higher Quality Total Return Index
IDB	:	Islamic Development Bank
IFI	:	Islamic Financial Institutions
IFIR	:	Islamic Funds & Investment Report
IFSB	:	Islamic Financial Services Board
IIF	:	The Institute of International Finance
IMF	:	International Monetary Fund
IPO	:	Initial Public Offering
IRRs	:	Dow Jones Sukuk Interest Return Index
JAFZ	:	Jebel Ali Free Zone

KPMG : Klynveld Peat Marwick Goerdeler

KSA : Kingdom of Saudi Arabia

LIBOR : London Interbank Offered Rate

M3TRs : Dow Jones Sukuk 1-3 Year Total Return Index

M5TRs : Dow Jones Sukuk 3-5 Year Total Return Index

M7TRs : Dow Jones Sukuk 5-7 Year Total Return Index

MARC : Malaysia Rating Corporation Berhad

MENA : The Middle East and North Africa

MISC : Malaysia International Shipping Corporation

MYSI : HSBC/ Nasdaq Dubai Malaysia US Dollar Sukuk Index

OIC : The Organization of Islamic Cooperation

OLS : Ordinary Least Squares

PPP : Public Private Partnership

RAA : Ram Rating Agency

Rf : Risk Free Rate

RIRs : Dow Jones Sukuk Total Return Index (ex-Reinvestment)

SABIC : Saudi Basic Industry Corporation

SAR : Saudi Arabian Riyal

SDLT : Stamp Duty Land Tax

SDR : Special Drawing Right

SESRIC : The Statistical, Economic and Social Research and Training Centre for Islamic Countries

SKBI : HSBC/ Nasdaq Dubai US Dollar Sukuk Index

SKIX : HSBC/ Nasdaq Dubai US Dollar Nasdaq Dubai-Listed Sukuk Index

SMB : Size Risk Factor

SPV : Special Purpose Vehicle

SUCI : HSBC/ Nasdaq Dubai Corporate US Dollar Sukuk

SUFI : HSBC/ Nasdaq Dubai Financial Services US Dollar Sukuk Index

SUSI : HSBC/ Nasdaq Dubai Sovereign US Dollar Sukuk Index

SUSI : Sovereign sukuk index

TID : The Investment Dar

TOL : Tolerance

UAE : United Arab Emirates

UK : United of Kingdom

USA : United State of America

VaR : Value-at-Risk

VIF : Variance Inflation Factor

WIFFMC : The World Islamic Funds & Financial Markets Conference

ΔCCI : Change in Consumer Confidence Rate

ΔCPI : Change in Inflation Rate

ΔDOR : Change in Dollar Rate

ΔHQR : Change in Operational Risk

ΔIRD : Change in Interest Rate

ΔMPR : Change in Maturity Risk

ΔRIR : Change in Liquidity Rate

ΔSMB : Change in Credit Risk

tn : Trillion

mn : Million

bn : Billion

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The first chapter provides the introduction of this thesis. Section 1.2 presents the background of a study which explains the importance of Islamic financial markets and its growth and the global evolution of sukuk market and its related problems. Section 1.3 presents problem statement of this study based on supporting previous empirical evidences. Research question and research objectives are provided in Section 1.4 and Section 1.5 respectively. Then, the significances of the study in several ways are discussed in Section 1.6. Finally, section 1.7 covers the scope and limitations of this study are also included in this chapter.

1.2 Background of Research

The Islamic financial market is fast growing and expanding despite the recent financial crisis that swept through the global financial market. In the past, even Muslim countries were reluctant to accept Islamic finance, but, now the situation has changed (Oakley, 2009).

According to SESRIC[1], the 57 Muslim countries are growing at a higher rate than the rest of the country in the World. As these countries grow and modernize, banking and financial sector will grow as well, but in line with the Islamic principles. Woodruff (2007) reported that major financial centers around the world have also adopted the Islamic financial system. They are in competition among them to accommodate

1. Organization of Islamic cooperation (OIC) has a subsidiary of the statistical, economic and social research and training center for Islamic countries (SESRIC) that has started its work in Tripoli in 1977 and Ankara 1978.

Islamic finance. Some of these countries are even working to issue their own sovereign sukuk. They are opening their financial system to Islamic finance. Not only is the licensing of new financial institutions becoming common in many countries, but also the conversion of some conventional financial institutions into the Islamic financial system. One of the most remarkable growths in the Islamic finance is the development and growth of its capital market product known as the sukuk. Luxemburg tax authorities have defined sukuk as "debt instrument whose income and capital return depend on the performance of underlying assets. Assets must be corporate assets or the usufruct thereof" (Rabia & Dascotte, 2010, p.7).

Literally, sukuk means Islamic bonds that can be accurately known as an Islamic investment certificate[2]. A bond is a contractual debt obligation which is obliged by the issuer to pay the bondholder on a specified date, interest and principle. However, under sukuk structure, the sukuk holder hold undivided ownership in the underlying assets. Asaria and Mohammed (2005) indicated that consequently, sukuk holders are entitled to obtain a share in the realization of the sukuk assets. Sukuk instruments play vital role in GCC countries. The GCC countries are a group of countries in the Arabian Peninsula that includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia (KSA) and the United Arab Emirates (UAE). GCC is an acronym for Gulf Cooperation Council. For the GCC countries, sukuk can play an important role in financing. Because, large-scale infrastructure projects are planned (Dawson, 2013).

The reason for the upsurge in the capital market is due to the availability of liquidity in the Middle East brought by surplus oil income and returning of billions of dollars

2. An Arabic name for financial certificate is sukuk. Sakk is the singular name for financial certificates. Islam prevents fixed-income and interest-bearing bonds. In terms of Islamic law (Shari'ah), interest is not imposed and prohibited for the investment. Sukuk falls in the category of securities.

in investment in the West since September 11, 2004 including in the USA. In the Middle East region, the capital market is dominated by equities and bank assets representing 94.4%, while debt securities are made up just 5.6% (Saidi, 2009). Therefore, the debt market needs to formulate international best practices for the sustainable growth in the regional financial market. The development of sukuk market, as an alternative to the conventional debt market, is expressed to be the main force for securing funds to finance infrastructure in the Muslim world and outside.

Ameinfo (2008) expressed that, despite the uncertainty in the world financial market, the capital market in the Middle East keeps growing. According to a report by Ernst & Young, the total capital raised by initial public offering (IPO's) in the first part of 2008 was US$ 8.69 billion compared to US$ 4.83 billion during the same period of 2007. The conventional market in the Arab region is still in their developing stages. The trend in GCC economies is privatized with an aim to encourage public private partnership (PPP)[3]. As such, both private and public sectors will be looking for long term secondary markets for liquidity. In the secondary market, bonds are illiquid because the buy-and-hold culture is still there. Investors (banks), social security and insurance companies usually hold bonds until they become mature as observed by Azzam (2004). Even though situations improved recently, the market is not liquid enough to allow real secondary market transactions.

The economic reforms in the Arab region in 2010 and development in the GCC financial market demand the presence of institutional investors and investment banks that lead to the development of capital market including both debt and equity. In the

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3.Schemes such as PPP, P3 or P^3 is termed as Public Private Partnership (PPP). Scheme PPP is a governmentally based or privately owned business venture. A joint partnership of government and private sector companies undertake funding activities.

absence of debt market, there would be no major acquisition or private equity activity to support. The lesson learnt from the Asian crisis in 1997 stresses the need to have a domestic bond market in order to reduce dependence on the banking sector for financing and dependence on the US Dollar. In the aftershock of the crisis, some countries took great efforts in establishing a local asset-backed security (ABS)[4] market. Asset- backed security (ABS) refers to that asset-related expenses attached to sukuk holders. Sukuk pricing depends on the market value of the underlying asset. The sale of a sukuk represents a sale of a share of an asset. A minimum of 51% tangible assets or their contracts are required to back the issuance of sukuk al Ijara which is an asset back sukuk (Thomson Reuter, 2013).

Aziz (2007) expressed that the worldwide practice has shown the well-built bond markets which rely heavily on the banking sector for financing that are vulnerable. As a result, funding mismatches led to financial instability. Aziz (2007) further pointed out that the Islamic financial structure promotes greater transparency and governance. It also promotes stability in the financial market. Thomson Reuter (2013) reported factually with regard to the growth and development of sukuk market. It is reported that the sukuk market grew gradually during the last three decades. The value of global aggregate sukuk between January, 1996 and September, 2012 was US$ 396.54 billion raised through 2790 issues. Of this total value, 60% comes from sukuk issued between 2010 and 2012. According to observation by the Thomson Reuters, the sukuk market is now seen to be at a similar stage of the conventional bond cycle of the 1970 when bond started to recover from the collapse of Bretton Woods. It is to be noted that the sukuk will reach the maturity of the conventional bonds if regulations are

4. There are two categories of sukuk such as trade-based and participatory. According to the issuance of financial investment, these two are categorized. Few recent defaults of a number of sukuk and the near defaults of others latter led to the new categorization of sukuk that are asset-backed and asset-based sukuk.

standardized. Both in value and volume of issuances, the sukuk attracts triple of current levels. At 2010, sukuk issuances reached a record high of US$ 51.2 billion, beating the previous peak in 2007. The first half of 2011 witnessed the issuances of US$ 43.8 billion globally, according to data compiled by Zawya sukuk monitor. Pruvost (2011) stated that this represents more than double the amount issued during the same period in 2010.

Lalawi (2011) stated that the market is still relatively small by international standard considering the fact that the first half of 2006 new sales of international bonds and short term notes accounting for a total only US$ 1.2 trillion, according to the Bank for International Settlement (2011). The Central Bank of Malaysia tops the list of lead arrangers who are sukuk issuers, with more than 50 percentages market share. Of the top 10 lead arrangers, seven are conventional banks and three central banks.

The role of Islamic banks is much below expectation for the fact that they are relatively weaker to support underwriting activities for large issuances in addition to their lack of investment banking experiences. This was based on the factual figures of dollar base and issuance base sukuk market as reported by Thomson Reuter (2013). It could be argued that the sukuk market has grown time to time globally. This was the greatest evidence that sukuk market is developing and becoming popular globally.

The aftermath of the global financial crisis is still being felt seven years on from the start of the initial collapse. Expanding national debt levels and the bail out of major investment institutions in previously core investment markets sent shock waves

through traditional investors. Identification of risks is made by using experience and expertise in the Islamic capital market. There are some problem areas or risks which are very important to manage.

1.3 Statement of the Problem

A lack of confidence in conventional bond market has resulted in an investor appetite for investments that offer greater transparency and an alternative risk profile (Abdulkader; 2007). With a differentiated approach to investing, focusing on tangible assets, sukuk is becoming an attractive investment choice for an increasingly large pool of investors.

In the past two years, in particular, the Islamic finance industry has gained momentum and researchers have seen increased interest in the market along with a diversification of Shari'ah products and services that have been a catalyst for investment. As this change takes place, the underlying investment vehicles will continue to benefit from investor confidence as investment volumes bring additional liquidity and opportunities for creating an ever more innovative and dynamic investor market.

Moreover, according to Percy (2015), recent economic and political shocks in previously stable markets have changed the dynamic for retail investors, indicating that good ethics can result in smart investing. Indeed, a shift in Western investor

sentiment towards Islamic finance is only one small indicator of the future prospects of Shari'ah compliant funds for investors.

In addition, there are further strengthening ideas on the importance of sukuk market that have been stated by Rafique (2008) and Dawson (2013). Rafique (2008) stated that overall economies across Muslim countries have been experiencing a high boom leading to demand for infrastructure to boost productivity and improve living standards.

Many of these infrastructure projects require a large amount of investment on a long term basis. It is expected that the major part of this capital would be raised through the Islamic capital market and sukuk instruments. The development of sukuk market, as an alternative to the conventional debt market, is expressed to be the main force for securing funds to finance infrastructure in the Muslim world and outside. Sukuk hence play vital role in GCC countries.

For a similar effort in the GCC countries to develop a bond and sukuk market, it requires a government sovereign bond market with the corporate bond and sukuk market. A developed sukuk and the sovereign bond market will enable the conduct of monetary policy and provide for benchmarking pricing in corporate bonds as stated by Woertz (2006). Therefore, the debt market needs to develop international best practices for the sustainable growth in the regional financial market.

A number of European governments have, in recent years, announced their plans to become the main hub for Islamic finance outside the Middle East and Asia. The UK is, by far, the most advanced in this and has made changes to the finance act and other regulatory framework in order to ensure a level playing field that is created for Islamic financial institutions. The reason for sukuk issuance outside the Middle East and Asia varies (Dawson, 2013). This is due to demand for sukuk globally. Demand for sukuk specifically arises from GCC, UAE, and Malaysia.

Despite the downturn in the capital markets, there has been a successful issue of the London listed $ 750 mn government of Bahrain's sukuk. European capital markets collapse due to World financial crises. Now, attention has been diverted from the capital market to sukuk market, which is attractive for infrastructure, building construction, and many more purposes. Therefore, the demand for sukuk market is inevitable globally.

Jobst et al. (2008) stated that the growth in size and scope of the sukuk market was accompanied by changes in the international and regulatory framework as well as market infrastructure. In 2000, the government's 10 year capital market master plan provided the broad strategic position and future direction for the Islamic capital market. Follak (2011) stated that the scope encompasses mainly the GCC and Malaysia as far as sukuk are widely adopted in countries. This is what the reasons that the banks applying the principles of Islamic finance have performed fairly well during the crisis. Khan (2013) pointed out that the essence of risk management rest in the partition and separation of risk into the smallest manageable possible component.

Firoozye (2013) stated that sukuk have become increasing all attractive to the international investment community.

Islam online (2013) reported that on global sukuk markets as per the study done for the International Monetary Fund (IMF), a strong demand from Muslim countries and conventional global institutions for Shari'ah principled bonds would boost the potential for sukuk despite the global credit crises. However, it stated that some critical constraints relating to continued legal uncertainty and regulatory divergences ought to be addressed. The study questioned that it is possible to argue that sukuk are riskier than bonds, or are they in fact safer.

The growth of the sukuk market in the Islamic financial system has been very robust. According to Al-Amine (2012), the sukuk market has taken a global dimension, and thus bringing new issues and challenges globally. Further, this study expressed that the sukuk market replicates bond market in conventional finance has helped to place Islamic finance industry as a viable industry and an asset class.

Dudley (2004) noted that there is very little capital market culture and lack of incentives to raise money through bonds and equities. Therefore, for an active capital market where sukuk can scrutinize the market to dominate in the region, there is a need for an active debt market with the regular issuance of sovereign and corporate bonds. Risk and return has to be studied in depth.

Further, Aziz (2007) expressed that the worldwide practice has shown the well-built bond markets which rely heavily on the banking sector for financing that are vulnerable. It was pointed out that the Islamic financial structure promotes greater transparency and governance. It also promotes stability in the financial market. Strategies to mitigate risk involved integrating risk free activities in the economy.

Sukuk market also presently faces many challenges. One of such challenge is its associated risks (Haral, 2010). Sukuk is subject to a wide array of risks inherent in their structure (Firoozye, 2012). One may argue that sukuk as structured today, are riskier as they just reflect the sector risks. Moreover, Alawsat (2008) points out that sukuk risks vary according to the structure of the sukuk and these risks also vary depending on the underlying assets of these sukuk. Baeshen (2009) argued that structuring sukuk is a fairly new science and that there are limited judicial and legal precedents to guide us as to how they are treated, and that most of the assets backing sukuk issues in the GCC region. Particularly, they are generally real estate based. There are many risks which are associated with sukuk.

Tariq (2004) stated that some of the sukuk issuances are exposed to interest rate risks since the rates are benchmarked against LIBOR rates. The rising market rates lead to fall in the fixed income from sukuk. This also leads to investment risks, especially, if the asset is not liquid as the zero non tradable sukuk. This study concluded that there was a positive correlation between the return of the investment and risk. Further, Tariq (2004) mentioned that, in the sukuk market, the responsibility of maintaining the asset structure is transferred to the lessee based or service agency agreement. This

results in asset risk for sukuk. Quqa (2008) identified that where the assets in the sukuk pool are denominated in one currency and the sukuk are accumulated in another currency, the sukuk investment is exposed to currency risks.

Dusuki and Mokhtar (2010) identify three types of risks in Islamic finance, namely permissible risk or essential risk, prohibited risk, and manageable risk. Al-Amine (2012), in this research expressed that, like any other financial instruments, sukuk also involves the country risks and the sector or assets risks. From a different angle, the risks face by sukuk credit risks, counterpart risks, operational risks, market risks, legal risks, taxation risks and the liquidity risks.

Risk regarding the poor regulations of the sukuk mechanism is another type of risk. Sukuk is not commonly tradable in the secondary market hence there is a risk of liquidity and of course, the most important is the Shari'ah compliance risks (Mehmood, 2010; Razaq, 2010; Haral, 2010). For Razaq (2010) that the most important risk to the sukuk market is the legal risk and it needs to be dealt urgently otherwise it will be very bad for the growth of sukuk market.

Haider and Azhar (2011) states that, with time, experience and expertise, one can better identify the risks exposures. However, there is no proper standardised regulation yet and is in the developing phase. Shari'ah scholars are also not competent. There is no final decision regarding the Shari'ah compliance problem for any Islamic product. People are confused which is right and which is wrong as in case of the article of Taqi Usmani which opens a new discussion (Razaq, 2010; Cheema, 2010).

Cheema, (2010) quoted that the greatest problem for investors is liquidity risks. On the other hand, some respondents said that, like the traditional bond, sukuk also has some market risks, for example, in case of fixed rate asset based sukuk, the interest rate and credit risk emerges (Haral, 2010).

Moreover, most sukuk market operates in emerging markets where counterparts have less sophisticated risk management mechanisms (Tariq & Dar, 2007). The Shari'ah does not recognize financial options as a form of wealth. Therefore, options cannot be traded (Usmani, 2002; Vogel & Hayes III, 1998).

In shorts several studies have pointed out different risks associated with sukuk return. i.e. Haral (2010); Hashmi (2010); Razaq (2010); Cheema (2010); Razaq, (2010); Mehmood (2010) have pointed out the return rate risk, market risk, assets risks, currency risk, Shari'ah compliance risk, legal risk, structure risk, regulatory risk , liquidity risk, credit risk. Al-Amine (2012) discussed about that country risks, assets risks, credit risks, counterpart risks, operational risks, market risks, legal risks, taxation risks, liquidity risks. Interest rate risks and regulatory risk.

Baeshen (2009); Alsayyed (2009); Tariq and Dar (2007) studied about sector risks, credit risk, default risk, legal risk, liquidity risks, equity risks, foreign exchange risks, profit risks, credit risks, market risks. The Global Research (2008) pointed about market risk, interest rate risk, foreign exchange rate risk, equity price risk, commodity risk. While Khan, (2012); Abdel-Khaled and Todd (2009); Kokab, (2010); Cheema, (2010); Haral, (2010); Wilson (2007); Howladar (2006); Alexander (2009); Agha and Grainger (2009); Cooper (2009); Richter and Sing (2009) highlighted on the Credit

risks, default risk, insolvency risk. Thus, these types of risks have been considered in the model.

The key step towards better risk management is the identification of the risks involved, since it is impossible to think about hedging or managing those risks if they are not known. Alsayyed (2009) also stress that in order to increase sukuk returns, similar risk management method cannot be applied for all types of risks embedded in sukuk. Therefore, an appropriate method of risk management must be identified to various risk based on the seriousness of its impact on sukuk returns. Therefore, the magnitude of the relationship between each type of risks and return and the significant impact of each risk of the return of sukuk is essential.

Haral (2010) emphasized that identification of risks associated with the sukuk is the first and most important for the future development of the market concern and for managing it in a better way. While the conventional bonds are reported to be associated with many risks such as interest rate risk, reinvestment risks, call risks, default risk, and inflation risks. The novelty of sukuk inherently entails a higher exposure to a certain market and financial risks because sukuk structure is based on the Shari'ah compliance. Therefore, all the risk associated with conventional bonds are not analogous to the sukuk structure. Therefore, some special risks are also associated with sukuk return. Therefore, it is very much needed to identify the risks associated with sukuk and the significant impact of different types of risk associated with the return.

Several research have been conducted on the relationship between risk and return in the bond market in different countries from different point of views, for example, research by Al-Amine (2012), Woertz (2006), Dudley (2004), Aziz (2007), however, Al-Amine (2012) and Aziz (2007) highlighted that very few research focused on the sukuk market. This early information and the fact that sukuk is different from conventional bonds in several aspects show the need for more studies on the sukuk market.

Jamaldeen (2010) stated that there are some common characteristics of both conventional bonds and sukuk. Both of these types of financial instrument are based on asset ownership, investment criteria, issue unit, issue price, effects of costs and investment rewards and risks. However, sukuk have few unique features relative to bonds.

The first feature is the asset ownership. Bonds do not give the investor a share of ownership in the asset, project, business, or joint venture they support. They are a debt obligation of the issuer to the bond holder. Sukuk give the investor partial ownership in the asset on which the sukuk are based. Once sukuk are owned by investors, they can get confidence about the sukuk. Asset ownership may be instrumental for operational risk. Consumers can be beneficial from the point of view of wealth maximization. Thus, the researcher has to have a deep understanding regarding the consumer confidence.

The second feature is the investment criteria. Generally, bonds can be used to finance any asset, project, business, or joint venture that complies with local legislation. The asset on which sukuk are based must be shari'ah compliant. The investment criteria are linked to operational risk that covers legal & Shari'ah compliance risk. When investors invest in sukuk Shari'ah board clarifies and supervises the operational risk periodically whenever needed. Thus, there is a need to study about the Shari'ah compliance risk in this research.

The third feature is the issuing unit. Each bond represents a share of the debt while each sukuk represents a share of the underlying asset. This feature has connection with market risk covering interest, inflation and dollar rate risk. Even when there are changes in interest, inflation and dollar rate risk, investor can retain the value of sukuk until maturity period without much fluctuation. Due to the increasing fluctuation in the interest rate, inflation rate and the dollar rate, it is argued that the problem related to interest rate, inflation rate and the dollar rate have to be analyzed with the support of the return.

The fourth feature is the issue price. The face value of a bond price is based on the issuer's credit worthiness (including its rating). The face value of sukuk is based on the market value of the underlying asset. This has the relationship with credit risk that incorporates credit and maturity risk.

The fifth difference between sukuk and bond is the effect on costs. Bond holders generally are not affected by costs related to the asset, project, business, or joint venture they support. The performance of the underlying asset does not affect investor rewards. Sukuk holders on the contrary are affected by costs related to the underlying asset. Higher asset-related costs may translate into lower investor profits and vice versa. This feature has a connection with liquidity risk and reinvestment risk.

The last is related to the investment rewards and risks. Bondholders receive regularly scheduled (and often fixed rate) interest payments for the life of the bond, and their principal is guaranteed to be returned by the bond's maturity date. Sukuk holders, on the other hand, receive a share of profits from the underlying asset (and accept a share of any loss incurred) during the term of the sukuk and asset value upon maturity.

Among the few studies on risk and return of sukuk market are that by Al-Amine and Global Investment House. According to Al-Amine (2012), any increase in interest rate is directly related to the decrease in the fixed return sukuk values. The study outlined about a number of risks. Market risk includes interest rate risk, inflation risk and foreign exchange risk. Operational risk incorporates legal risk and shari'ah compliance risk. Credit risk includes default risk and counterparty risk, and maturity risk. Liquidity risk includes reinvestment risk. Also, the study sets different argumenting hypotheses. Some of the hypotheses were accepted, indicating that proof of the relationships between risk and return. This study also found that varying degrees of relationships in relation to market risk, operational risk, credit risk and liquidity risk.

The Global Investment House (2009) expressed that market risk is composed of interest rate risk, foreign exchange rate risk, equity price risk and commodity risk. Therefore, the impact of various risks on returns on different sukuk structure is important. The above said literature reviews revealed that all of the above mentioned types of risk can be grouped into four categories broadly, such as market risks, credit risks, liquidity risks and operational risks.

In summary, the findings on the elements of risk embedded in sukuk structure or contract in a different sukuk market and the relationship between each type of risk and returns are crucial for effective risk management strategy but at the same time such findings very limited.

Therefore, further study is needed to further strengthen the current literature by providing empirical findings to support the past literature on the influence of Shari'ah compliance risk and liquidity risk on sukuk returns. Proper findings of different types of risks and its significant impact on returns may provide an initial step to make implications and to manage them in a better way in the sukuk market. That is also expected to contribute to sustainable growth of the sukuk market with further findings.

To this end, the arguments presented before indicate the crucial need to examine the sukuk risk and return relationship. As mentioned by Al-Amine (2012), the sukuk return is the key aspect of the sukuk market development. Thus, the risks the associated with sukuk return need to be checked, tested and verified for further insights into the sustainable sukuk return. Moreover, appropriate risk management

techniques will foster the growth of the sukuk market that result from the satisfaction of a greater variety of investment needs.

Following the statement of the problem, the succeeding section outlines the research questions and objectives of the study.

1.4 Research Questions

Empirical evidences are used to raise several research questions in this study. Many scholars emphasized the impact of risk on sukuk returns (eg: Haral, 2010; Al-Amine, 2012; Nanaeva, 2010; Firoozye, 2012; Alaswsat, 2008; Cheema, 2010; Khan, 2012). However, a proper empirical study has not yet been done to determine the different types of risks embedded in sukuk structure and the intensity or the extent to which different types of risks have impact on sukuk returns. Previous literatures and the problem statement have led to ask following research questions:

1. What are the different types of risks embedded in sukuk structure?
2. How significant in the relationships among different types of risks (market risk, credit risk, operational risk and liquidity risk) and their impact on the return of sukuk?
3. To what extent, different types of risks (market risk, credit risk, operational risk and liquidity risk) impact on the return of sukuk?

1.5 Objectives of the Study

Based on the above problem identification and research questions, the researcher sets three objectives as mentioned below. They are to investigate:

1. Different types of risks embedded in sukuk structure.
2. The relationships among different types of risks (market risk, credit risk, operational risk and liquidity risk) and the return of sukuk
   - 2.1 Explore and analyze the relationship between market risk (interest rate risk, inflation risk and dollar rate risk) and sukuk returns.
   - 2.2 Explore and analyze the relationship between credit risk (credit risk, and maturity risk) and sukuk return.
   - 2.3 Explore and analyze the relationship between operational risk (legal and Shari'ah compliance risk) and sukuk returns.
   - 2.4 Explore and analyze the relationship between liquidity risk (liquidity risk and reinvestment risk) and Sukuk returns.
3. The impact of different types of risks on return of sukuk.

1.6 Significance of the Present Study

This study contributes in a number of ways. First, numbers of opportunities are accessible in sukuk market. That is to say, after the recent global financial crisis in 2008-2009, conventional banking and financial system was mostly blamed due to its unsustainable nature of the system. Therefore, the need for a strong and well regulated sukuk market has been emphasized. Leaders in the financial sector, both in the

government and the corporate sector have realized the emerging needs and the opportunities for the sukuk market. Therefore, findings of this study will fill this gap and provide alternative opportunities and possibilities of this unique investment which may lead to a sustainable one.

Second, this study might also contribute to develop the forecast model in sukuk market as developed by other previous studies. A number of studies emphased this point of view. For example, Rusgianto (2013) studied about the volatility behavior of sukukmarket under consideration of structural breaks and puts forward a risk-return forecasting model incorporating the volatility behavior of sukukmarket.

Third, the significance of this study can be viewed from the industry perspective as well. Sukuk market is a growing field in banking and finance. Studying this growing market is also important to industry. The Global Ivestment House (2008) reported that the sukuk is a new dawn of Islamic finance era; the Islamic financial services industry has witrillionessed a frantic pace of growth during the last decade of 2002 to 2012. Since its inception i.e. three decades ago, the number of Islamic financial institutions worldwide has risen to over 300 % in more than 75 countries. According to standard and poor (2012), the Islamic finance industry is worthy about US$500billion in assets, and has been growing at about 10% per year for the last decade. While estimates about the size of the industry differ, conservative sources put total assets of Islamic financial institutions at US$230billion. In 2012, they are expected to grow at over 15% during the next 5 years.

Fourth, this study might give awareness to promote sukuk issue among GCC and Malaysia. It is felt there is a need for universally applicable Shari'ah interpretation on sukuk issuance. It becomes clear now that the sukuk default in future restructuring will change the way sukuk are structured and marketed. A number of studies emphasized the market structure of sukuk. For instance, Al-Amine (2012) stated that with regard to default or mortgage. Sometimes, the assets are scattered in multiple jurisdictions.

Further, Al-Amine (2012) expresses that, another common issue related to the sukuk default is about documentation. When sukuk were first formulated seven years ago, they included provisions about what would happen in the event of default. When sukuk are documented as unsecured, they would be treated just as conventional bonds. Thus, the same legal solution can be sought as in the case of conventional bond issues. Without clear provisions, it is very much possible that multiple creditors claim on a company asset after a default.

On the other hand, the sale of many sukuk has been more secure than conventional bonds as they were asset based. In case of sukuk defaults, it would be exposed as to how the court interprets the legal documentation of the sukuk. The underlying issue here is whether the mortgage assets have been truly transferred to investors or not. The issue can be made more complicated with different Shari'ah scholars and lawyers interpreting the issues in different ways. Experts in the finance sector maintained that most sukuk are structured as an asset based instrument, rather than assets backed securitization.

Fifth, the findings from this study will help to manage risk in the sukuk market and hence promote the growth of the sukuk market. As reported in the Islamic Finance Gateway, Thomson Reuters (2013) pointed out that large portions of sukuk in the recent low rate environment will necessarily decline in value, if rates increase in the market. The cost of swapping to variable rate utilizing profit rate swaps is still a new and relatively expensive practice for Islamic financial institutions.

As further pointed out in Thomson Reuters (2013), the supply of international sukuk is limited compared to the high investment demand that expects the paper from an issuer with a solid reputation in the market. Despite such high demand, liquidity remains a major challenge for sukuk investors. On the other hand, sukuk that is placed at the far end of the maturity curve higher speeds or less traded as these are probably held by pension and hedge fund investors who prefer long term investment which generate fixed returns with moderate risk. The development and expansion of the Islamic capital market are integral to the overall development of Islamic finance as well as the broadening and deepening of capital market in general. While there are different products and services that make up the Islamic finance, including stocks, funds, and risk management mechanism, sukuk takes a critically important place.

Sixth, it is important to note that this study is important for the hub of Islamic finance. The GCC region has been experiencing a huge amount of cash inflow and ever increasing need to fund huge infrastructure development that is taking place. There are huge benefits in investing locally available fund for local investment. Stable and the established Islamic financial system can facilitate investors and borrowers alike. As per the Shari'ah scholar strengthening and broadening the sukuk market will lead

to strengthening of the Islamic finance as a whole. It would be a triumph for the promoters of the Islamic finance, if it is finally recognized as an alternative to the conventional financial system. Therefore, this present study will strengthen the sukuk industry with the findings and recommendations.

Seventh, this study will contribute to the existing literature on Islamic finance by adding value to the present literature on Islamic finance by providing evidence on the relationship between firm-related risk (default risk) and sukuk return. This study will further strengthen the current literature by providing empirical findings to support the past literature on the influence of Shari'ah compliance risk and liquidity risk on sukuk returns.

Eight, the results of this study would find the elements of risk embedded in sukuk structure and contract in the different sukuk market. Furthermore, it will be possible to make recommendations to mitigate risks in the sukuk market that are expected to contribute to the sustainable growth of sukuk market with the findings. It will also be possible to provide recommendations to which risk the management should give more weightage in managing risks, preventing risks at all or minimize the risks and avoid unnecessary disappointments. The practice of good risk management will definitely help to promote the growth of the sukuk market.

1.7 Scope of the Research Study

The basis of the scope of the research study as outlined below. For the first instance, this research focuses on different risks and returns in the sukuk structure in the

Islamic financial market. There are a number of sukuk markets in the World that has a long history for many years. Few empirical evidences are also supported by the researcher.

The main focus of this study is to know about the relationship between different types of risks and return this section outlined about the relationship between different types of risks and the return. On this basis, clear demarcation is based on the risk- return relationship between in the sukuk. In this study outlines the impact of each type of risk on sukuk return. The risk of sukuk market varies between market, countries, maturity, currency, rating, sectors and structures of the sukuk. However, this study focus on risk related to the sukuk instruments directly. For instance, interest rate risk, inflation rate risk and the dollar rate risk, consumer confidence risk, Shari'ah compliance risk, credit risk, maturity risk and liquidity risk.

This study does not cover few risks such as call risk and taxation risk. Although there are different varieties of risks this study fails to consider the risks such as country risk, political risk, call risk and taxation risk and so on. Country risk refers to the risk that a country won't be able to honor its financial commitments. Political risk represents the financial risk that a country's government will suddenly change its policies. Call risk refers to the premature call of sukuk issuers. Taxation, risk refers to that varying taxation due to time factor.

However, the scope of the study is limited many risks, whereas few risks are not incorporated in this present study. They are asset risks, legal risk, structure risk, regulatory risk country risks, counterpart risks, taxation risks, sector risks, default risk, equity price risk, and commodity risk. This study considered the mostly and

widely used risks that have high impact in the sukuk market. Therefore, these variables have not been accounted to the model.

Second, the scope of the study is confined to listed sukuk only. Globally, 2794 sukuk have been issued up to 2013. However, out of that only 224 are traded sukuk. This study covers only these sukuk. The value of these 224, sukuk is represent 25% of the total value of the sukuk in the global market. Listed sukuk in the well-known sukuk markets such as Bahrain Stock Exchange, Bursa Malaysia, Indonesia Stock Exchange, London Stock Exchange, Luxembourg Stock Exchange, Nasdaq Dubai Exchange, Saudi Stock Exchange, Irish Stock Exchange, Hong Kong Stock Exchange and Singapore Stock Exchange have been chosen for this study.

Next, the scope of the study is confined by the data. Adjusted monthly indices using the online data stream in the main recognized web site from Dow Jones sukuk indices and Nasdaq Dubai sukuk indices are used, but no information has been collected from individual companies or investors. The main indices have various sub-indices based on sector and geography amongst other criteria. Adjusted closed values of each index have been downloaded from websites of the respective sukuk market. For example, HSBC/ Nasdaq Dubai sukuk indices, such as global sukuk index (SKBI), sovereign sukuk index (SUSI), corporate sukuk index (SUCI), financial services sukuk index (SUFI), HSBC amanah sukuk index (HASI), Nasdaq Dubai listed sukuk index (SKIX), GCC sukuk index (GSKI) and GCC corporates sukuk index (GSKC),GCC financial services sukuk index (GSKF),United Arab Emirate sukuk index(AESI),

Bahrain sukuk index(BHSI) and Malaysia sukuk index (MYSI) have been used in this study.

This study is also considered only by selecting eminent data stream for the sukuk market. Data from Dow Jones Sukuk Indices, such as Dow Jones sukuk price return index, Dow Jones sukuk interest return index, Dow Jones sukuk total return index (ex-reinvestment), Dow Jones sukuk AAA-rated total return index, Dow Jones sukuk AA-rated total return index, Dow Jones sukuk A-rated total return index, Dow Jones sukuk BBB-rated total return index, Dow Jones sukuk 1-3 year total return index, Dow Jones sukuk 3-5 year total return index, Dow Jones sukuk 5-7 year total return index, and Dow Jones sukuk 7-10 year total return index have been used in this study.

This study covered the period from 2005 to 2013 because of data available in the data stream. Further, the scope of the research study is limited to only the successful sukuk market in the world namely Bahrain, Malaysia and UAE.

1.8 Chapter Summary

This chapter presents the background of the study. The Islamic financial market has evolved globally (Oakley, 2009; Woodruff, 2007). Next part of this study presents the problem of this study using previous empirical evidences that led to formation of research questions that are in turn converted into objectives. The first objective of this study is to identify different types of risks embedded in sukuk structure and to determine the impact of different types of risks on the return of sukuk. The second objective is to explore and analyze the relationship between market risk (interest rate

risk, inflation risk and dollar rate risk) and sukuk returns; to explore and analyze the relationship between credit risk (credit risk, and maturity risk) and sukuk return; to explore and analyze the relationship between operational risk (legal and Shari'ah compliance risk) and sukuk returns; to explore and analyze the relationship between liquidity risk (liquidity and reinvestment risk) and sukuk returns. The third objective is to determine the impact of different types of risks on the return of sukuk Then, this study signifies in several other ways. Scope of the research study indicates limited to only the successful sukuk market in the World.

CHAPTER TWO

EVOLUTION OF SUKUK MARKET

2.1 Introduction

Following the first chapter, this chapter introduces the Islamic finance and the concept of sukuk market. Next, the differences between sukuk and conventional bond have been compared in detail. Since AAOIFI plays major roles on sukuk it has also been blotted in this chapter. Different types of sukuk and evolution of sukuk market have been described.

2.2 Introduction to Islamic Finance

Islamic financing is not tied to any particular jurisdiction. It can take place anywhere in the world. Particularly, where there are Muslims who wish to engage in financial transactions in a manner consistent with their faith. One of the fundamental principles governing Islamic financing is that the receipt of interest is prohibited. This is categorically stated in the Qur'an: "Those who devour Riba (interest) will not stand except as stands one whom the devil hath driven to madness by (his) touch" (Chapter 2 of sentence 275). In an investment environment, Riba is interpreted as any return on the money that is predetermined in amount. And therefore includes modern day interest-based financing. Instead, Islamic principles allow for the replacement of interest by a return that is dependent upon the profitability of the underlying investment. In addition, Islamic principles permit the financing of sales by means of deferred payment at a premium to the spot price.

Lovells (2004) studied about Islamic Finance, Shari’ah, sukuk and securitization. Modern scholars have also encouraged asset-backed finance where the return to the

financier is linked either to the provision of an asset to the client or to the acquisition of an asset from the client. In all of the above a clear linkage emerges between the earnings of returns and the assumption of risk. Many eminent researchers studied and actively participated in Islamic finance, especially in the field of sukuk. Baig (2011) studied about Islamic banking and finance. Islamic Banking is a response to make the capitalist financial system Sharia-compliance. Wilson (2007) argued that ultimately Islamic banking and finance is about the emergence of a distinctively Islamic form of capitalism that may co-exist and interact with the Western, Chinese, Russian or any other capitalism. Such a development should be welcomed and facilitated, and not hindered or suppressed.

According to the concept of Shari'ah, transactions are prohibited in several instances. For instance, uncertainty (gharar) in contracts where there is a prohibition on the sale of items whose existence or characteristics are not certain. Gambling (maisir) may apply to dealings in futures and options to the extent that they are speculative. Prohibited (haram) commodities and activities that involve a blanket prohibition on involvement in activities relating to the provision of pork, alcohol, gambling services and among others. Various Shari'ah compliance financing and investment structures have been developed. Namely, five of the most commonly used structures are murabaha (sale at an agreed profit margin), mudarabah (participation financing), musharaka (equity participation), ijara (leasing) and sukuk (Islamic bonds). Although the most commonly used structures such as murabaha (sale at an agreed profit margin), mudarabah (participation financing), musharaka (equity participation), ijara (leasing) are used in Islamic finance the concept of sukuk (Islamic bonds) also intake the above Islamic financial structures for its financing. Therefore, the succeeding

section of the review of literature details about the concept of sukuk and its financial markets.

2.3 The Concept of Sukuk Market

Literally, sukuk means Islamic bonds. To be more accurate, it is an Islamic investment certificate. A bond is a contractual debt obligation which the issuer is obliged to pay the bond holder, on a specified date with interest and principle. However, under sukuk structure, each sukuk holder holds undivided ownership in the underlying assets (Asaria & Mohammed, 2005). Consequently, sukuk holders are entitled to a share in the proceed of the realization of the sukuk assets.

IFSB (2009) defined that, sukuk as certificate with each sakk (singular of sukuk) representing a proportional undivided ownership right intangible assets, or a pool of predominantly tangible assets or a business venture, like Mudarabah. These assets may be in a specific project or investment activity in accordance with Shari'ah rules and principles. AAOIFI standard 17 defined investment sukuk as certificate of equal value representing undivided shares in ownership of tangible assets, the usufruct and services or ownership of the assets or a particular project or special investment activity. However, this is true after the receipt of the value of the sukuk, closing of the subscription and the employment funds received for the purpose which the sukuk are issued. The Global Investment House (2008) reported that there are a number of traditional Islamic financial contracts and through financial engineering new contracts can be designed in compliance with the prohibition of Riba and Gharar. The proper classification of the asset classes will determine the type of certificates to be issued. Although sukuk market represents a number of different sukuk globally, this study

considers only six active sukuk that are listed by AAOIFI. There are different types of sukuk described as permissible in the accounting and auditing organization for Islamic financial institutions (AAOIFI) Shari'ah standards on sukuk, namely, Ijarah sukuk, Musharaka sukuk, Mudaraba sukuk, Al-Salam sukuk, Murabahah sukuk, Istisna sukuk and Hybrid.

Sukuk represent a number of benefits and features rather than conventional bond. Tradable Shari'ah-compliant capital market product provides medium to long-term fixed or variable rates of return. Theye are, assessed and rated by international rating agencies, which investors use as a guideline to assess risk and return parameters of a sukuk issue. There are regular, periodic income streams during the investment period with easy and efficient settlement and a possibility of capital appreciation of the sukuk. Liquid instruments are tradable in the secondary market. However, there is a clear distinction between sukuk and conventional bond that are outlined in the next section in detail.

2.4 Sukuk vs Conventional Bond Comparison

Sukuk and conventional bonds show the same purpose, i.e financing on a long term basis. Yet, they cannot be equated for several reasons. First, the sales of sukuk represent a sale of a share of an asset whereas a sale of a bond is the sale of debt except to some extent for the case of asset backed securities. A central element for any successful securitization transaction is the availability of complete credit and financial information on underlined assets verified by reputable auditors and their independent valuation. It is not necessary to confirm the assets in the conventional securitized pools to Islamic norms, because primary securitization was established

and developed in non-Islamic economics. Second, the assets in sukuk shall not be a debt, but a physical assets or assets that have value such as rights and usufruct. In the structuring of global sukuk, so far the assets securitized or used as underlying, the assets for sukuk include land and properties. It could also be machine equipment as with Tabreed sukuk or a fleet of cars as it is with caravan sukuk or usufruct sukuk as in the case of zam zam sukuk or a right as in the case of sabic sukuk.

Third, Zubairi (2006) noted that, from an investor point of view, an important aspect of sukuk is that asset- backed bond investors may lose all their wealth in the event of default by the borrower. While in the case of sukuk, investors have an undivided share in the ownership of sukuk assets. It is also inevitable that sukuk holders should also be ready to bear any loss in the sukuk assets. Fourth, the underlying assets to be securitized in sukuk must be permissible and fulfill Shari'ah principles. As such the underlying assets cannot involve items such as alcohol and pork. Similarly, investment must also be cleaned acceptable from Shari'ah perspectives. Investment in the casino industry is not Shari'ah compliant. The sukuk assets cannot be leased for non-ethical purpose.

Fifth, in Islamically structured securities or sukuk, sukuk holders jointly own the assets and therefore, they all have an ownership interest in them. But conventional bond investors do not have ownership interests in the underlying assets. They are only creditors. Sixth, sukuk prices are market driven and depend on the market forces of supply and demand. As such, the value of the underlying assets and return from its use may appreciate or depreciate. In the case of conventional bond, the return for the bond holders depends solely on the creditworthiness of the issuers. The situation of

issuer failure unsecured bond holders join the pool of general creditors seeking the assets of a bankrupt company.

Seventh, sukuk issuers are aware of their limitations and what they could raise from subscribing investors. In cases where the issue is oversubscribed the total subscription cannot exceed the market value of the underlying assets of the sukuk. The issuer is therefore, under obligation to accept from the investors only up to the value of the underlying assets of the sukuk. On the contrary, if the bond issue is oversubscribed the issuer intends to retain the maximum possible amount. Zubeiri (2003) considers this as being imprudent and unnecessarily putting investors' fund and interest in to jeopardy. According to Aziz (2007) this represents another central merit of the sukuk structure. Eight, Weist (2002) pointed out that conventional securitizations often have several different tranches of securities issued against a pool of assets, with rating varying between AAA[1] down to B depending on the security of the cash flow.

However, this does not work in the context of sukuk. As a general principle, in any sukuk issuance or Islamic securitization, only one tranche of the security would be permitted for each pool of assets. Ninth, McNamara (2006) stated that, the assets are transferred to SPV[2] true sale. And this is an important Shari'ah requirement and financing of the SPV is not treated as debt on the balance sheet of the originator. Unfortunately, as many sukuk issuers are based on beneficial ownership they do not strictly abide by this requirement. From the above reasons, it is clear that sukuk is

1. DP Information group introduced the rating systems in the sukuk market. DP Information group has a partnership venture with RAM Holdings Berhad. The RAM holdings is a bond rating agency in Malaysia. Credit Information SdnBhd, headquartered in Kuala Lumpur, Malaysia is treated by RAM Holdings.

2.The common law is distinguished between legal and equitable right/ownership where the trustee owns. On the basis of this common law, Special Purpose Vehicle (SPV) is normally established in the world of securitization and sukuk issuance

different from conventional bond not only from Islamic point of view, but also from financial perspectives. Dawson (2013) states that sukuk is islamic bond equivalents, are playing an increasing role in global financial markets. Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) also highlights the role of AAOIFI on sukuk.

2.5 Role of AAOIFI on Sukuk

Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) is an Islamic international autonomous non-for-profit corporate body. Its organizational structure is presented in the Figure 2.1. Islamic financial institutions and the industry make ready about accounting, auditing, governance, ethics and Shari'ah standards. AAOIFI presents Professional qualification programs. The industry's human resource base and governance structures are enhanced due to this programme. Agreement of Association was signed by AAOIFI. On 1 Safar, 1410 AH corresponding to 26 February, 1990, Islamic financial institutions in Algiers supported to this agreement. Following that, on 11 Ramadan 1411 corresponding to 27 March, the State of Bahrain allowed this association to register. As an international organization, it acted independently. 200 members from 45 countries have been supported by AAOIFI. Central banks, Islamic financial institutions, and other participants from the international Islamic banking and finance industry are having the memberships in this association.

The Kingdom of Bahrain, Dubai international financial centre, Jordan, Lebanon, Qatar, Sudan and Syria were assisting to AAOIFI that has acquired assuring support for the implementation of its standards. The same is now being adopted by the aforesaid countries. In addition to these countries, AAOIFI's standards and

pronouncements were also adopted by the relevant authorities in Australia, Indonesia, Malaysia, Pakistan, Kingdom of Saudi Arabia, and South Africa.

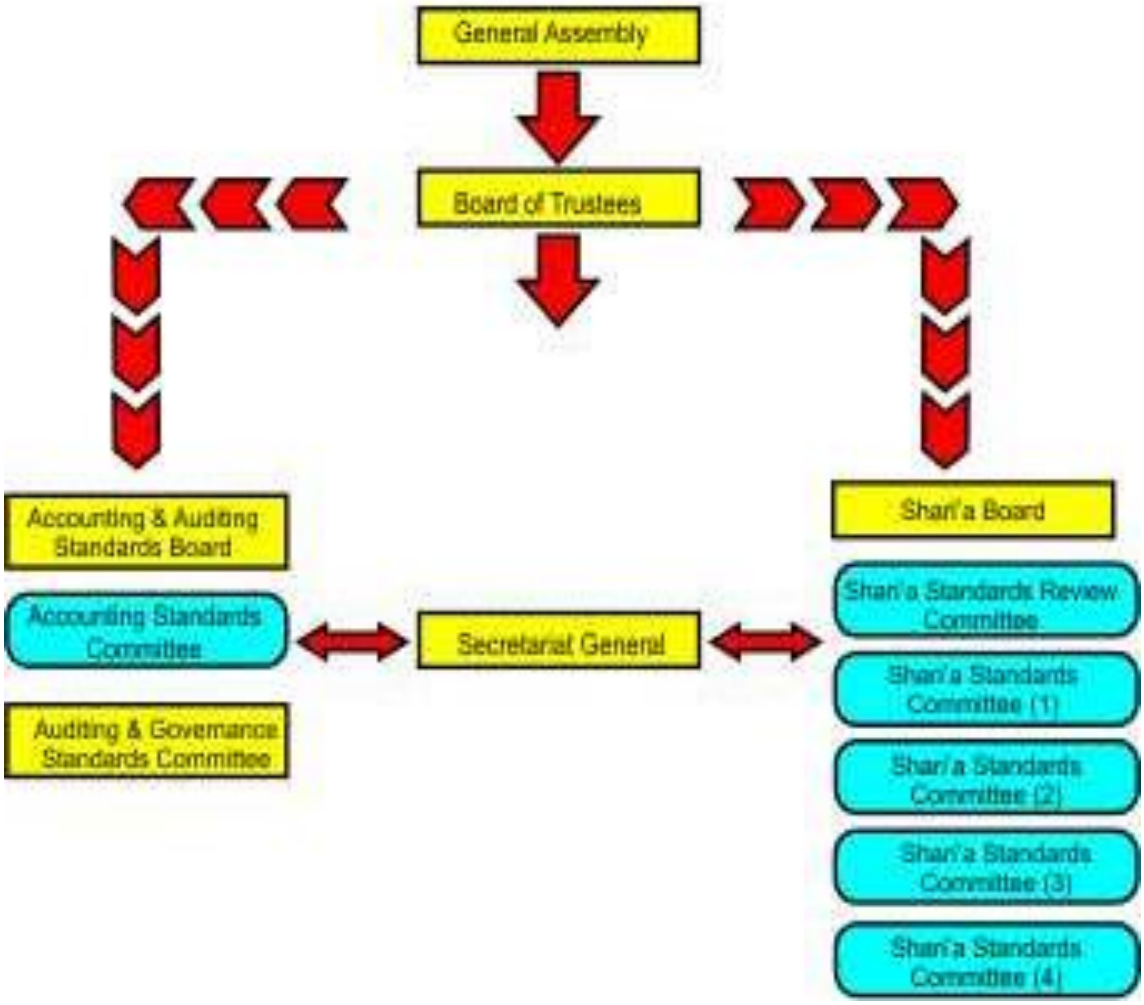

Figure 2.1
AAOIFI structure
(Source: Adopted from AAOIFI)

Shari'ah board is composed of not more than twenty members as shown in Figure 2.1. A four-year term represents the appointment of board of trustees. Shari'ah supervisory board is composed of Fiqh scholars from Islamic financial institutions. AAOIFI and Shari'ah supervisory boards have obtained their membership from Central Banks. Power of Shari'ah Board goes to a number of reasons for the power of Shari'ah Board. One of the important reasons for assistance in the development of Shari'ah approved instruments. In fields of finance, investment and other banking services

instruments and formulas are developed by these institutions to cope with the said developments.

The Shari'ah board of the accounting and auditing organization for Islamic financial institutions (AAOIFI) stated that the sukuk has been increasing worldwide. There is a growing interest on public who is the subject of the issuance of sukuk. On 12 Jumada al-Akhirah 1428 AH corresponding to 27 June, 2007, the first session of meeting was conducted in al-Madinah al-Munawwarah. Second session of meeting on 26 Sh'aban 1428 AH corresponding to 8 September, 2007 was conducted in Makkah al-Mukarramah. The third session of meeting on 7 and 8 Safar 1429AH corresponding to 13 and 14 February, 2008 was conducted in the Kingdom of Bahrain (Kamil, 2009). Followed by the meeting of the working group, on 6 Muharram 1429AH corresponding to 15 January, 2007, board appointed a body in Bahrain. In this sitting, a significant number of representatives from various Islamic banks and financial institutions were attended. The Shari'ah board admitted the working group to present its report to the Shari'ah board.

Concepts were studied after taking into consideration of their deliberations in these meetings. Further, there were reviews about their concept papers. The rules provided in the AAOIFI were reconfirmed at the Shari'ah standards concerning sukuk. Islamic financial institutions and Shari'ah supervisory boards were advised by the Shari'ah board to adhere to when issuing sukuk. First, sukuk have been characterised by number of features namly sukuk should be tradable, sukuk holders should own it, sukuk holders should have all rights and obligations of ownership, and they should be in real assets. In case, when sukuk are tangible and usufructs or services they must be capable of being owned and sold legally. Manager issuing sukuk must certify the

transfer of ownership of such assets. Such ownership should be certified the transfer of ownership of such assets in its (sukuk) books. Own assets must not be kept by the managers.

Second, receivables or debts must not be represented as receivables or debts. It is included that sukuk must be unitentional, i.e. in the case of a trading or financial entity selling all its assets, standing financial obligation should be kept by a portfolio. Third, the manager of sukuk cannot be permitted for sukuk, whether a mudharib (investment manager), or sharik (partner), or wakil (agent) for investment should behave so as to undertake to offer loans to sukuk holders, when expected earnings is less than actual earnings. In order to compensate this shortfall, it should be permissible to establish a reserve account.

Fourth, the mudharib (investment manager), sharik (partner), or wakil (agent) may not be permitted to undertake and re-purchase the assets from sukuk holders. On the other hand, the same is done from one who holds them. In case of its nominal value, at the end of its maturity, once there is an extinction for sukuk. The purchase, on the basis of the net value of assets, its market value, fair value or a price to be agreed may be permissible to undertake while there is an actual purchase. When considering the assets of sukuk of al-muharakah, mudharabah, or wakalah, there are lower investments for lesser value than the leased assets of "lease to own" contracts (ijarah muntahiah bittamlik). Sukuk manager can be permitted to undertake to purchase those assets. At the same time, at the time the sukuk are extinguished for the remaining rental value of the remaining assets because of their net value. So as to undertake to purchase the leased assets, lessee might be permissible in a sukuk al-Ijarah. This occurs once nominal value sukuk are extinguished for the same. Provided that for a lessee, who may not be a partner, mudharib, or investment agent.

In terms of AAOIFI compliance, Mufthi Usmani (2008) criticizes the musharaka of offering investors a repurchase undertaking where the issuers promise to back the face value of the sukuk when it matures or in the event of a default. This practice violates the principles of risk sharing and resembles the structure of conventional bond. However, following research by Thomson Reuters Zawya (2013) found that 72% of sukuk comply with AAOIFI Standard that is shown in Figure 2.2.

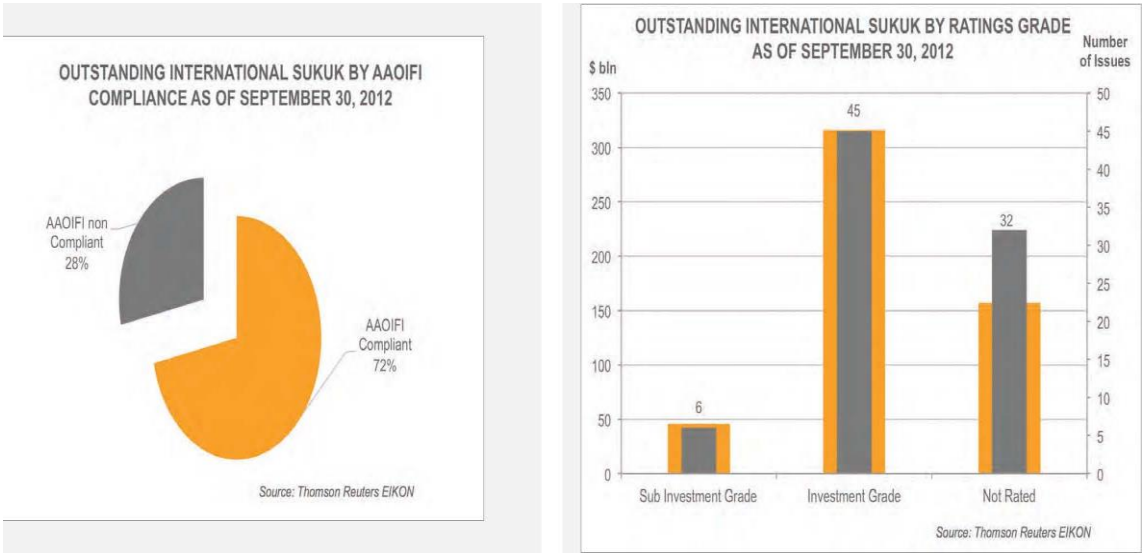

Figure 2.2
International Sukuk by AAOIFI Compliance
(Source: Adopted from Thomson Reuters EIKON

According to Thomson Reuters, out of 83 current outstanding Eurobonds, investment grades and sub investment grades sukuk add up to 51; and this is expected to increase as per the survey findings. International sukuk rated in accordance with AAOIFI compliance are preferred by investors. The results illustrated that 92 % of investors prefer rated papers, out of which 68% prefer BBB- and above, 16 % A and above, and 8% sub-investment grade. More than two-thirds of investors believed that ratings should be compulsory, as the opinion of an independent third-party on the credit quality of sukuk will provide investors with an added measure of comfort. Sukuk rating is mandatory in Malaysia but not in the GCC region.

2.6 Types of Sukuk

Different types of sukuk are indicated in the preceding sections. According to Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), sukuk are classified into sukuk al ijarah, musharaka sukuk, mudaraba sukuk, al-salam sukuk, murabahah sukuk, istisna sukuk and hybrid sukuk. Each of the above different varieties of sukuk is outlined in detail. No. 17 of AAOIFI, investment and all types of these sukuk represents Shari'ah standards.

In the case of sukuk al ijarah, certificates of equal value issued either by the owner of a leased asset or tangible assets to be leased by promises are referred to as al ijarah sukuk. The owner acts as the financial intermediary. This type of the sukuk is the most widely used one. Client purchases ijara i.e. lease that is a contract, according to which a party purchases for a rental fee. Ownership of the asset remains for the duration of the rental and the fee are agreed in advance.

There are many characteristics for sukuk al-ijara. The ability and desirability of the lessee are paid to Ijara that is subject to risks. Further, these types of sukuk are also subject to real market risks that arise from potential changes in asset pricing and in maintenance and insurance costs. Some forms of Ijara expect the net return that may not be completely fixed and determined in advance. Maintenance and insurance expenses might be some maintenance and insurance expenses. These are not perfectly determined in advance. The secondary market is responsible for Ijara that is completely negotiable and can be traded. A high degree of flexibility is obtained from the point of view of their issuance management and marketability for Ijara. These sukuk are issued by central government, municipalities, awqaf or any other asset users, private or public. Financial intermediaries can be issued directly by users of the

leased assets. Owners bear full responsibility for what happens to their property. Lessee maintains it in such a manner that one obtains as much useful. Transaction structure of ijara is depicted in Figure 2.3.

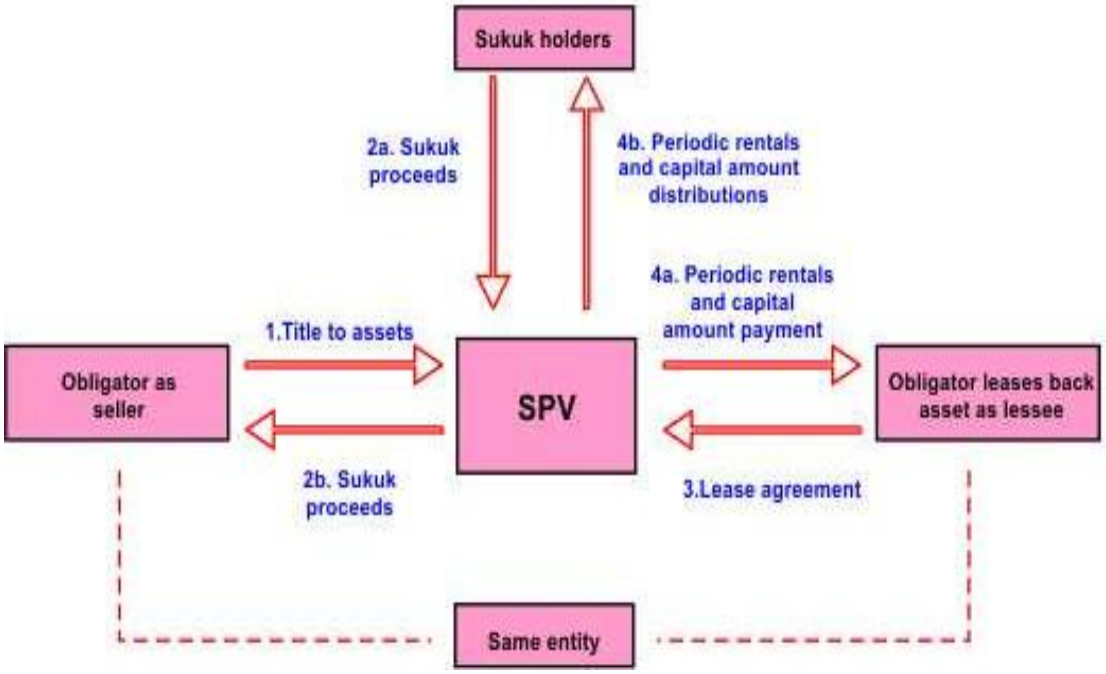

Figure 2.3
Transaction Structure of Sukuk Al-Ijara
(Source: Adopted from Dar Al Istithmar)

There are a number of steps in transaction structure of ijara. The first certain assets to the special- purpose vehicle (SPV) is sold at an agreed pre-determined purchase price. Second, an amount equal to the purchase price is financed by the SPV that raises financing by issuing sukuk certificates. Third, obligator passes. Fourth, there is a lease agreement that is signed between SPV and the obligator for a fixed period of time, where the obligator leases back the assets as lessee. Fifth, obligator receives SPV from periodic rentals. Sixth, sukuk holders distribute them. Seventh, at maturity, or on a dissolution event, the seller sells the SPV assets back at a predetermined value. Under the terms of the ijara al sukuk, that value may be any predetermined amounts.

The value of the sukuk al-musharaka is equal to the value indicated in the certificate. They are issued for establishing new projects. In case of developing an existing or financing business activity, it should be based on any partnership contract. Owner of the project or assets of the activity goes to the certificate holder as per their respective share. Participation in management is necessary for all providers of capital. But, it is not mandatory. According to the agreed ratio, the profit is shared among the partners. Capital contributions go to all partners and the loss is bared by them proportionately. In case of the owners of the project, Musharaka is the certificate to them. Owners can have the assets of the activity as per their respective shares. Negotiable status is available for these musharaka certificates. So, they can be bought and sold in the secondary market. Musharaka arrangement is done for corporate and the special purpose vehicle (SPV) for a fixed period and an agreed profit-sharing ratio. Further, companies try to undertake musharaka shares of the SPV periodically. Figure 2.4 depicts the transaction structure of musharaka.

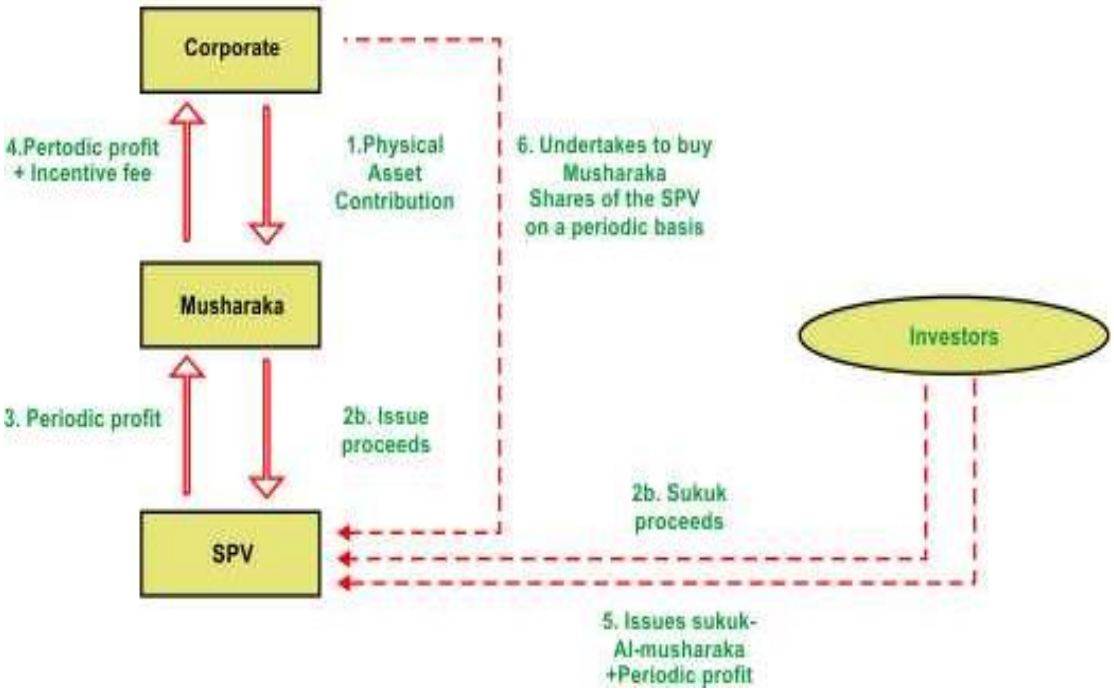

Figure 2.4
Transaction Structure of Sukuk Al-Musharaka
(Source: Adopted from Dar Al Istithmar)

There are a number of steps for the transaction structure of musharaka. First, land or other physical assets are contributed to SPV (musharik). Second, as depicted in Figure 2bs, cash contribution lies for musharik. Thereby, investors to the musharaka issue proceeds received from the musharaka. Third, corporate is appointed by musharaka as an agent for developing the land (or other physical assets) along with the cash that is pumped into the musharaka that is sold for the developed assets on behalf of the musharaka. Fourth, fixed agency fee and a variable incentive pay are getting by the agent (i.e. the corporate). Fifth, sukuk holders distribute the profits. Sixth, there is a corporate that irrevocably undertakes to buy sukuk at a pre-agreed price. The musharaka shares of the SPV on semi-annual basis and at the end of the fixed period. Then, there is no chance for SPV to last long in any share in the musharaka.

Sukuk al-mudaraba is the certificate where projects or activities are managed by one of the partners or another person as a muharib are managed by operational management. There is an agreement that Mudaraba occurs between two parties. The capital (capital provider) is provided by one of the two parties. The other (mudarib) works with the condition that the profit should be shared between them as agreed in a predetermined ratio. Mudarib is the mudaraba certificate issuer. Captal providers are the subscribers. The realised funds are the mudaraba capital. The assets of mudaraba are held by the certificate holders. It is agreed that share of the profits or losses, if any, are borne by capital providers only. Right is given to owner for Mudaraba sukuk so as to receive his capital. This happens at the time of the sukuk where sukuks are surrendered. An annual proportion of the realised profits are also given as agreed in the agreement. In the process of development financing, vital role is played. It resembles to the profitability of the projects.

Neither yield interest nor entitle owners claim for any definite annual interest for Mudarabasukuk. This seems that mudaraba sukuks are like shares that may vary with returns, which are accrued according to the profits made by the project. A common ownership cannot be represented for Mudaraba sukuks. Thus, owners are entitled to hold shares in a specific project for which the sukuk are issued to fund. All right reserves for a sukuk holder that are determined by Sharia on the basis of his ownership of the mudaraba bond in matters of sale, gift, mortgage, succession and the like. When there is an expiry for the specified time period of the subscription, right is given to the sukuk holders to transfer the ownership by sale or trade in the security market at his discretion. Figure 2.5 depicts the transaction structure of musharaka.

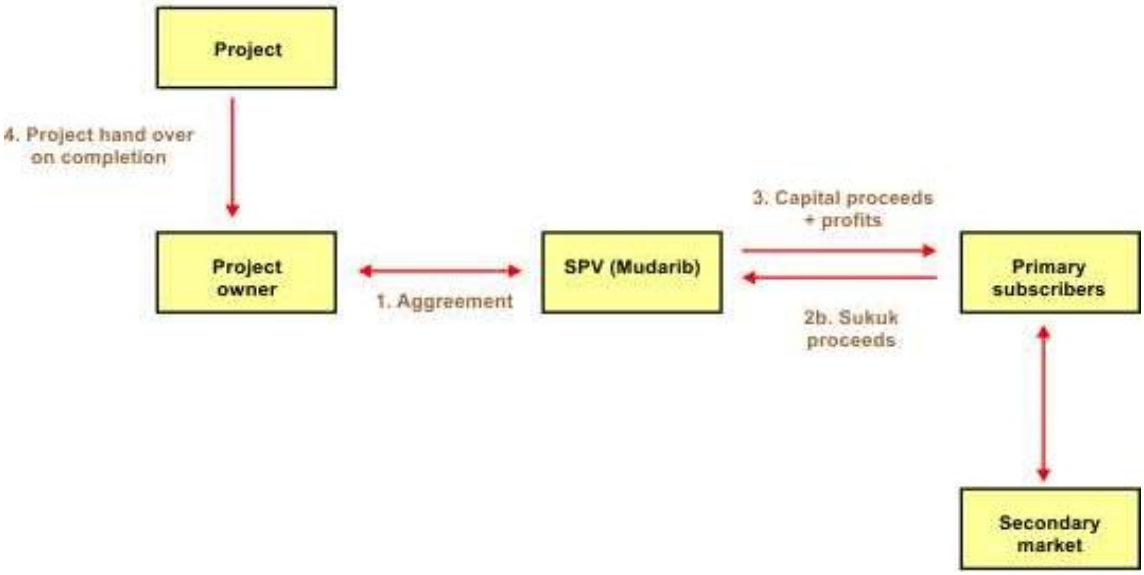

Figure 2.5
Transaction Structure of Mudaraba Sukuk
(Source: Adopted from Dar Al Istithmar)

There are number of steps that are involved in the structure of mudaraba sukuk. First, project owner agrees with mudarib in an agreement for construction/commissioning of the project. Second, funds are raised to issue SPV. Third, regular profit payments and final capital proceeds from project activity for an onward distribution to investors

are collected by mudarib. Fourth, the owner is handed over with the finished project when they are completed.

Sukuk al-salam is the sukuk certificate. It has equal value that is issued for the purpose of utilizing the salam capital. Goods are to be delivered on the basis of salam. Then, it comes to be owned by the certificate holder. Salam is being issued by the central bank of Bahrain (CBB) since 2001. In addition, they are issued by Bahrain, Sudan and Gambia. Since Salam sukuks are share in the Salam debt they are not tradable instruments. It is the sale of a specific commodity. It is well-defined in its quality and quantity that are delivered to the purchaser on a fixed date for the future against an advanced full payment of price at spot.Seller of the goods of salam becomes the issuer of the certificates. The buyers of the goods become the subscribers. While funds are realized from subscription they are the purchase price (salam capital) of the goods. The owners of the salam goods are the holders of salam certificates who are entitled to the sale price of the certificates. The sale price of the salam goods is sold through a parallel salam. It is sold by salam-based securities that may be created and sold by an SPV under which the funds are mobilized from investors who are paid as an advance. It is important for a SPV that an agent to market is promised to quantity at the time of delivery perhaps, at a higher price. The profit to the SPV becomes the difference between the purchase price and the sales price. Hence, ownership goes to the holders of the sukuk.

Requirements applied to all standard Shari'ah are applied to salam which fall in the category of full payment by the buyer at the time of effecting the sale. Further, these are falling under the standardized nature of underlying asset, clear enumeration of

quantity, quality, date and place of delivery of the asset and the like. There are several conditions for salam. One of such Shari'ah conditions relating to salam and for generating salam is that there is no provision for purchasing goods that are not re-sold before the actual possession at maturity. Selling of debt falls in such transactions. Salam instrument has this constraint that renders instrument illiquid. Thus, they are somewhat less attractive to investors. When an investor buys a salam certificate on the maturity date, prices of the underlying commodity are expected to be higher. Figure 2.6 depicts the transaction structure.

Figure 2.6
Transaction Structure of Sukuk Al-Salam
(Source: Adopted from Dar Al Istithmar)

There may be several steps that are involved in the transaction of salam. First, both commodities and buyers are engaged in the agreement with SPV with an obligatory. There is a need to buy for an obligator to make contract on behalf of the end-sukuk holders. Then, profit of sukuk holders is distributed to commodity for the profit. Second, once salam certificates are delivered to investors SPV receives sukuk proceeds. An obligator who sells commodity on a forward basis precedes the salam. Third, obligator is entitled to receive SPV. Fourth, On behalf of sukuk holders,

obligator sells the commodities for a profit. Then, sale procedure is received by sukuk holders.

Murabahah sukuk is the sukuk that is non-tradable and it is defined as a certificate of equal value that is issued for the purpose of financing the purchases of goods. Owner of the commodity owns the certificate. Albeit in terms of Malaysian scholars, they allow the permissibility of the sales of debt for debt. Sale of goods is based on murabaha at a price that comprises the purchase price including a margin of profit that is agreed upon by both parties concerned. Equal values account for murabaha that is issued for the purpose of financing the purchase of goods through murabaha. The issuer of the certificate can sell the murabaha commodity. Then, buyers of the commodity become the subscribers for that commodity. Then, commodity is realized at the purchasing cost of the commodity. Murabaha commodity is a certificate that is owned by the murabaha holder who is entitled to its final sale price that is agreed upon the re-sale of the commodity.

There is a possibility of having a legally acceptable murabaha-based sukuk which is only feasible in the primary market. Shariah does not permit the negotiability of these sukuk. Their trading is not allowed at the secondary market. Certificates represent a debt owing from the subsequent buyer of the commodity to the certificate-holders, when one involves in such trading in debt on a deferred basis this will result in riba. Despite being debt instruments, there is a possibility for negotiating the murabaha sukuk when they have a smaller part of a package or a portfolio. The largest part of this constitutes the negotiable instruments such as mudaraba, musharaka, or ijara sukuk. It has been popular for Murabaha sukuk due to liberalism. In detail, In

Malaysian market, there is liberalization due to a more interpretation of fiqh by Malaysian jurists permitting sale of debt (bai-al-dayn) at a negotiated price. Figure 2.7 depicts transaction structure.

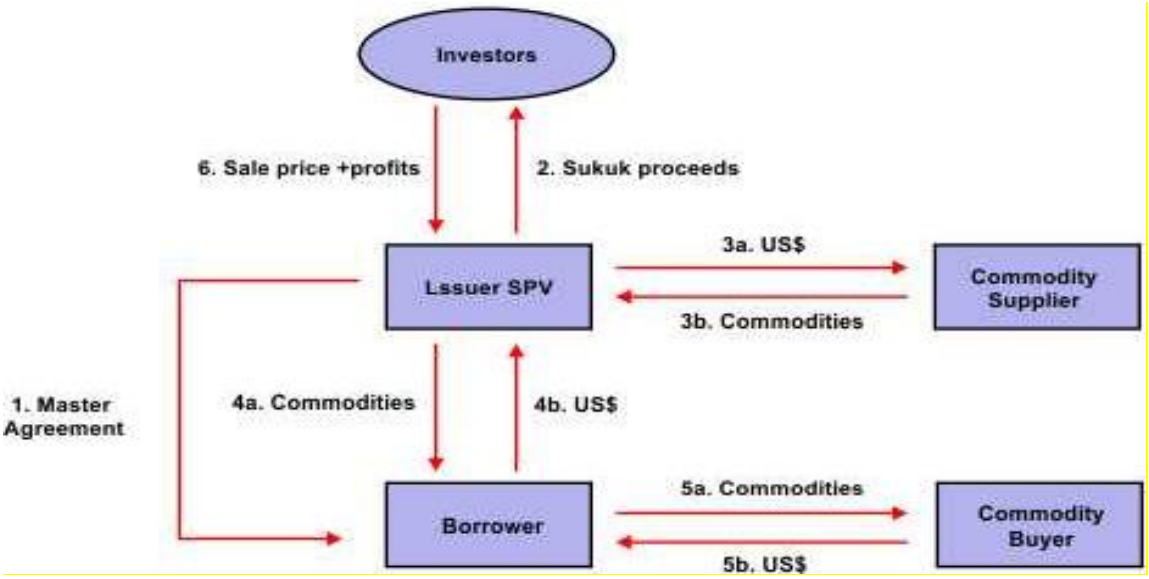

Figure 2.7
Transaction Structure of Murabahah Sukuk
(Source: Adopted from Dar Al Istithmar)

There are a number of steps that are involved in the structure of murabahah sukuk. First, the SPV and the borrower signed an agreement. Second, sukuk are issued for SPV to the investors. Then, it is preceded by sukuk. Third, commodity is bought by SPV on spot basis from the commodity supplier. Fourth, the commodity is sold by SPV to the borrower at the spot price along with a profit margin that is payable in installments over an agreed period of time. Fifth, the commodity is sold by the borrower from a commodity buyer on spot basis. Sixth, the final sales price and profits are received by investors.

Istisna sukuk is a certificate that is of equal value which is issued for the purpose of utilizing the fund for the production of goods. Certificate holder owns the goods

produced. At par value, Istisna sukuk is traded. The manufacturer (seller) is the issuer of these certificates in this transaction. The subscribers are considered as buyers of the goods. They produce and mobilize the funds at the cost of the goods. On the basis of Istisna, goods own to the certificate holders. The selling price of the manufactured goods has this nature. There is an agreement for Istisna which is a contractual agreement for manufacturing goods and commodities. It allows for cash payment in advance in place of future delivery or a future payment and future delivery. Producer undergoes an agreement for a manufacturer that is built around a well described good or building at a given price on a given date in the future. Installation is paid on price basis step by step that is agreed between the parties. There is a usage for istisna that can be used for providing the facility of financing the manufacture or construction of houses, plants, projects, and building of bridges, roads and highways.

There is sukuk al-istisna that is, a certificate which carry equal value. They are issued for the purpose of mobilizing the funds which are required for producing products that are owned by certificate holders. The manufacturer (supplier or seller) is the issuer of these certificates. The subscribers are the buyers of the intended product. The cost of the product is realized from funds. The product is owned by the certificate holders who are entitled to the sales price of the certificates. Or else, the sales price of the product sold will be on the basis of a parallel istisna.

It is useful for Istisna sukuk that is useful for financing large infrastructure projects. The permissibility for the contractor bases on the suitability of istisna for financial intermediation in Istisna. Because investors enter into a parallel istisna contract with a sub-contractor. Thus, the construction of a facility is undertaken by a financial

institution for a deferred price. Sub contract is an actual construction to a specialised firm. The sale of these debt certificates is prevented by Shari'ah prohibition of riba to a third party at any price other than their face value. It is clear that such certificates may be cashed only on maturity. They cannot have a secondary market. Figure 2.8 shows the Istisna sukuk.

Figure 2.8
Transaction Structure of Istisna Sukuk
(Source: Adopted from Dar Al Istithmar)

There are a number of steps that involves with regard to Istisna sukuk. First, sukuk certificates are issued to SPV so as to raise funds for the project. Second, sukuk issue proceeds are used to pay the contractor / builder to build and deliver the future project. Third, SPV transfers its title to asset holders. Fourth, end buyer sells the property or project. Monthly installment is paid by the end buyer to the SPV. Fifth, the sukuk holders distribute the return among them.

Hybrid sukuk is another type of sukuk where investment is important for sukuk issuance and trading. It takes them into account of various demands of investors. A

more diversified sukuk -hybrid or mixed asset sukuk are emerged in the market. In a hybrid sukuk, istisna is comprised of the underlying pool of assets. Murabaha is receivables as well as ijarah. In order to have a portfolio of assets comprising of different classes, it is allowed for a greater mobilization of funds. However, it cannot sell murabaha and istisna contracts in secondary markets. Securitised instruments have at least 51% of the pool. In a hybrid sukuk, it must comprise of sukuk tradable in the market such as an ijarah sukuk. Since there is a fact that the murabaha and istisna receivables are part of the pool. The return on these certificates can only be a pre-determined fixed rate of return. These hybrid sukuk have yet to make headways in the market. Potential new structures are represented by the new structure. Figure 2.9 depicts the hybrid sukuk.

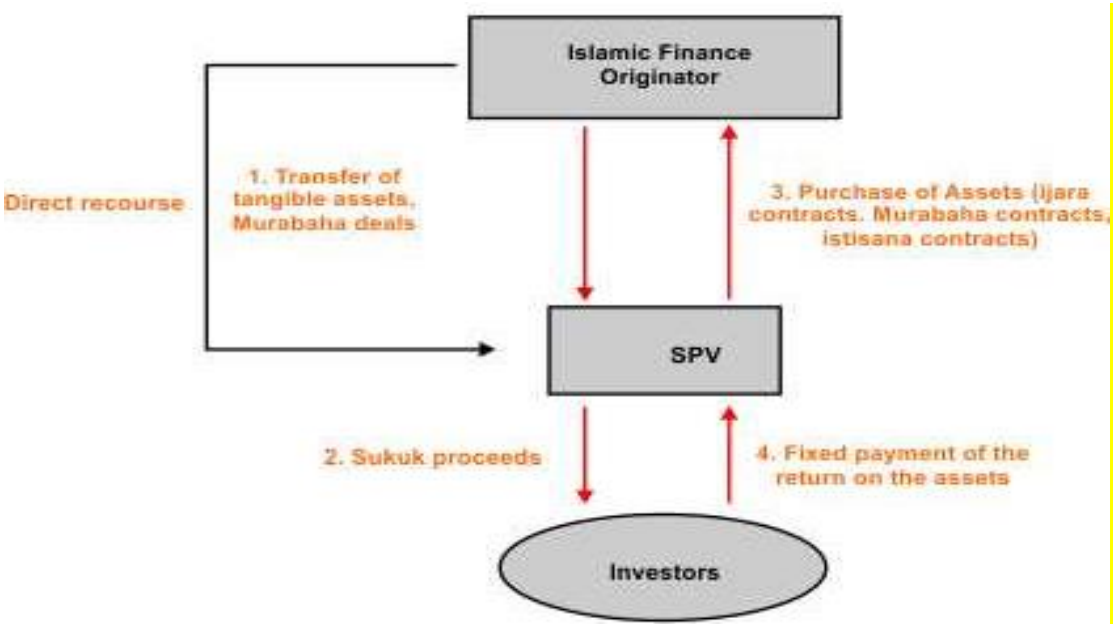

Figure 2.9
Transaction Structure of Hybrid Sukuk
(Source: Adopted from Dar Al Istithmar)

There are a number of steps that are involved in the structure of hybrid sukuk. First, assets that are tangible to Islamic finance originator transfer such tangible assets. SPV deals with Murabaha. Second, certificates of participation are issued by SPV. Islamic

finance originator uses the funds. Third, assets are purchased by Islamic finance originator from the SPV over an agreed period of time. Fourth, fixed payments of return on the assets are received by investors.

2.7 Evolution of Sukuk Market

In this part of the study, an attempt has been made to identify the main sukuk market and analyze contribution. Geographically, Asian countries such as Malaysia, Indonesia, Singapore, Hong Kong, and GCC countries such as Bahrain, United Arab Emirates, Kingdom of Soudi Arabia, Kuwait, Qatar, Oman and West such as Great Britain, Irish, Luxembourg etc. are the main sukuk markets at the moment. Parallelly, there are emerging markets within this region while Africa seems to be region for future sukuk market.

The first ever sukuk issuance took place in 1990 after the fiqh academy of the organization of the Islamic conference legitimated the concept of the sukuk in February 1988. Since the first issuance of the sukuk in 1990, the development of the market has undergone four phases as shown in Table 2.1. It shows that, the first phase was from 1990 to 2001. They all started with the issuances of MDS corporate sukuk in Malaysia.

The first phase was characterized by small local issuances mainly by the Malaysia government for a value of US$ 5.89 bn on 95 issuances. The second phase from 2002 to 2007 was characterized by many local and international issuances that started with Malaysian government issuing the first rated international sukuk, a total of 726 issuances for US$ 87.71 bn. From the inception up to now, Malaysia is dominating in

the sukuk issues. Aftermath of the financial crisis, Europe and GCC countries also play a major role in sukuk issues. According to Thomson Reuters (2012), first rated international sukuk by the Malaysian government was "a game changer in the sukuk market".

Table 2.1
The Main Phases of Sukuk Market

Phase	Characteristics	Number of Issuance	Value of Issuances ($ bn)
1990 to 2001	▪ Started in 1990 with MDS corporate sukuk in Malaysia ▪ Small local issuances primarily by the Malaysian government	95	5.89
2002 to 2007	▪ Started with the Malaysian government issuing the first rated international Sukuk ▪ Followed by many local and international issuances	726	87.71
2008 to 2010	▪ Global financial crisis ▪ Asset bubble burst in the GCC ▪ Sharia – Compliance issues as raised by AAOIFI	909	108.03
2011 to present day	▪ Continuing effects of global financial crisis ▪ Post Arab Spring	1060	194.78

(Source: Adopted from Thomson Reuters, 2013)

The third phase was from 2008 to 2010 which witnessed the global financial crisis, asset-bubble based in the GCC and Shari'ah compliance issues as raised by AAOIFI. During this period, there had been 909 sukuk issuances for a total value of US$ 108.03 bn. The sukuk market also entered a new era due to exceptional price favoring relative to conventional bonds. The lowest cost of issuing sukuk was mainly due to investors looking to diversify away from the EURO zone crisis.

The fourth phase started from 2011 and continues to date. The effect of global financial crisis continues while the Post Arab Spring[3] effects are also felt. Number of issuances has been 1060 for a total value of US$ 194.78 bn. This was a dramatic change in the value of issues, which is a sign that the sukuk market has solidified itself and has been growing steadily.

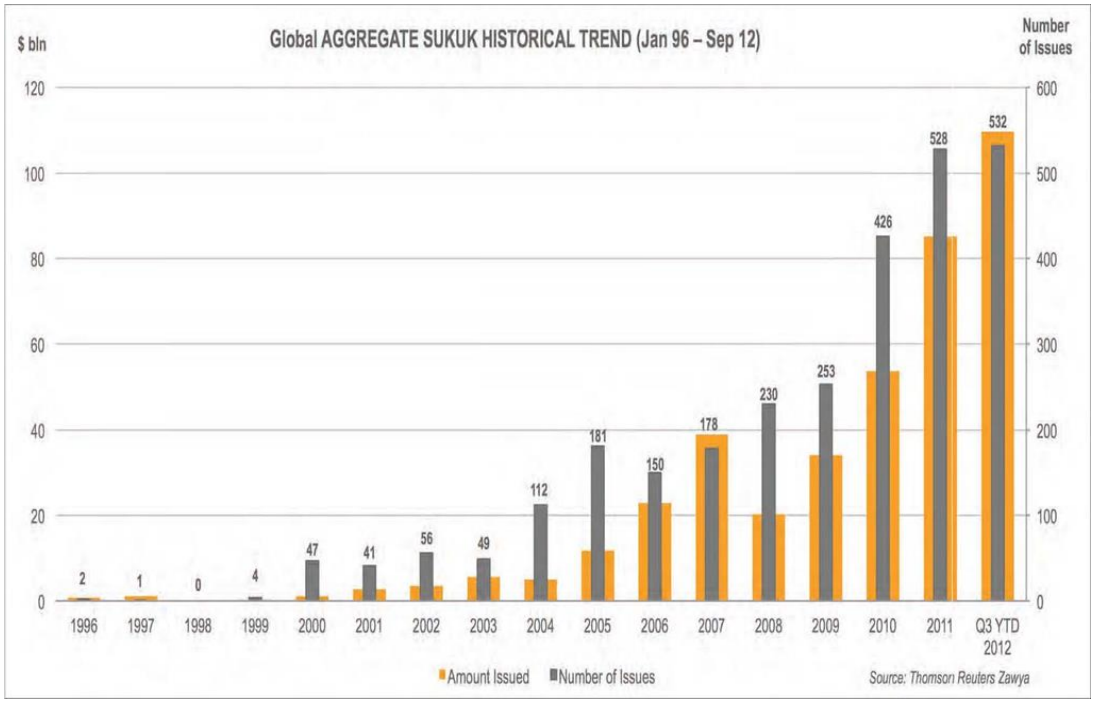

Figure 2.10
Global Aggregate Sukuk Historical Trend
(Source: Adopted from Thomson Reuters Zawya)

Figure 2.10 show that, the value of global aggregate sukuk between January 1996 and September 2012 was US$ 396.54 bn raised through 2790 issues. Of this total value, 60% comes from sukuk issued between 2010 and 2012. It is also possible to observe that from 2010 the growth is steep. According to observation by the Thomson Reuters, the sukuk market is now seen to be at a similar stage of the conventional bond cycle of the 1970 when bond started to recover from the collapse of Bretton

3.The Arab Spring started in January 2011, after nine months of the start of the Arab Spring in January 2011, Middle East and North Africa (MENA) region has uncertainty in the political and economic outlook. Greater political and economic freedom was popular.

Woods. It could be noted that the sukuk will reach the maturity of the conventional bonds if regulations are standardized both in value and volume of issuances, the sukuk will attract triple of the current levels.

In 2010, sukuk issuances reached a high record of US$ 51.2 bn, beating the previous peak in 2007. The first half of 2011 witnessed the issuances of US$ 43.8 bn globally, as per the data compiled by zawya sukuk monitor. Pruvost (2011) stated that this represents more than double the amount issued during the same period in 2010. Lalawi (2011) stated that the market is still relatively small by international standards considering the fact that the first half of 2006 represents new sales of international bonds and short term notes total US$ 1.2 tn, as per bank for international settlement. The central bank of Malaysia tops the list of lead arrangers with more than 50% market share. Of the top 10 lead arrangers, seven are conventional banks and there are the central banks. The role of Islamic banks is much below expectation for the fact that they are relatively weaker to support underwriting activities for large issuances in addition to their lack of investment banking experiences.

In evolutionary case of domestic and international sukuk, domestic sukuk refers to that issuance of sukuk which is done within a particular geographical territory in their own local currency whereas International sukuk means that issuance of sukuk is done outside a particular geographical territory in that country's foreign currency. The value of the global aggregate sukuk between January 1996 and September 2012 was US$ 396.8 bn with US$ 322.4 bn in domestic sukuk and US$ 74.4 bn in international sukuk. Until 2011, sukuk mainly functioned as domestic financing instrument for local government and corporations. In 2002, when the Malaysian government

launched the rated international sovereign sukuk, the scenario changed for sukuk international financial market as shown in Figure 2.11.

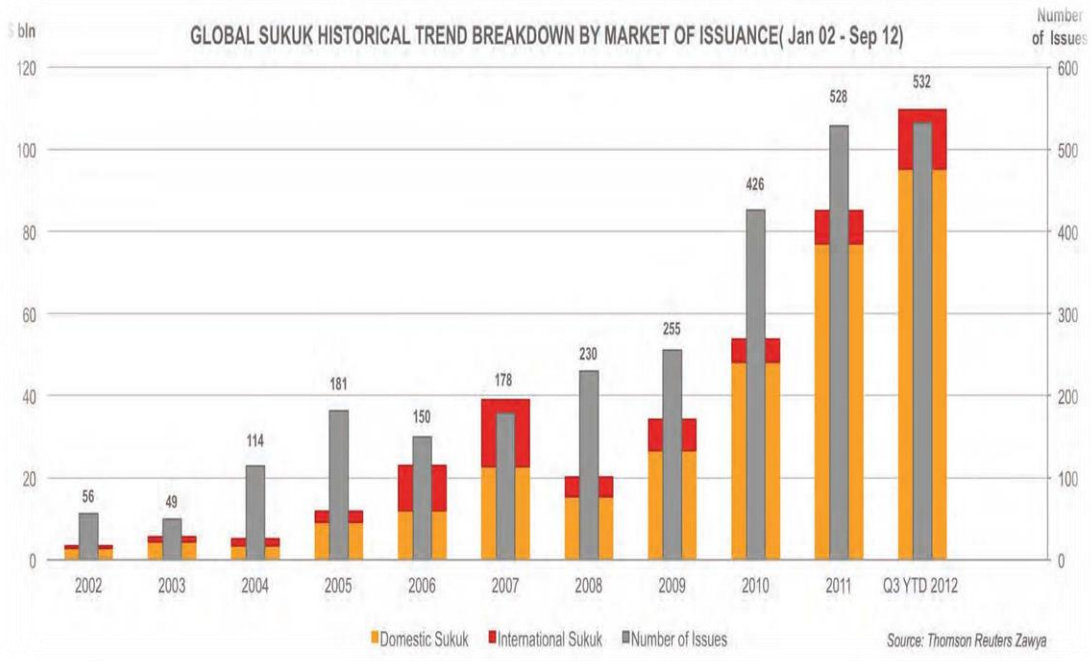

Figure 2.11
Global sukuk historical trend breakdown by market issuance
(Source: Adopted from Thomson Reuters Zawya)

The value of international sukuk reached a remarkable ratio 42:58 against the domestic issuances in 2007. However, the ratio changed dramatically to 24:76 in 2008. It is still unclear whether this growth back was due to the global financial crisis in the same year or the fathwa issued by Taqi Usmani saying that 85 % sukuk were not Shari'ah compliant. The predominance of domestic issuances in 2011 was 90:10. In the third quarter of 2012, it was 87:13. While the sukuk issuance has in value and volume, the domestic issuance's indicated the impact of the continuing global financial crisis. According to a survey finding by Thomson Reuters (2013), 72% of investors and 54% of lead arrangers believe that the international sukuk will be the most expected types of issuances in the next couple of years. Because international sukuk are considered to be liquid and tradable, it makes it easier to hedge against

currency risk for the global investors. Sukuk activity is concentrated in two regions such as South East Asia and Middle East, mainly GCC. In South East Asia, Malaysia is the homeland for the sukuk market. According to survey finding by Thomson Reuters Zawya data, Malaysia is the largest issuer with the issuance amounting to US$ 262.92 bn from 1897 sukuk issuances. On the other hand, the GCC countries are also leading issuers of sukuk as shown in the Figure 2.12.

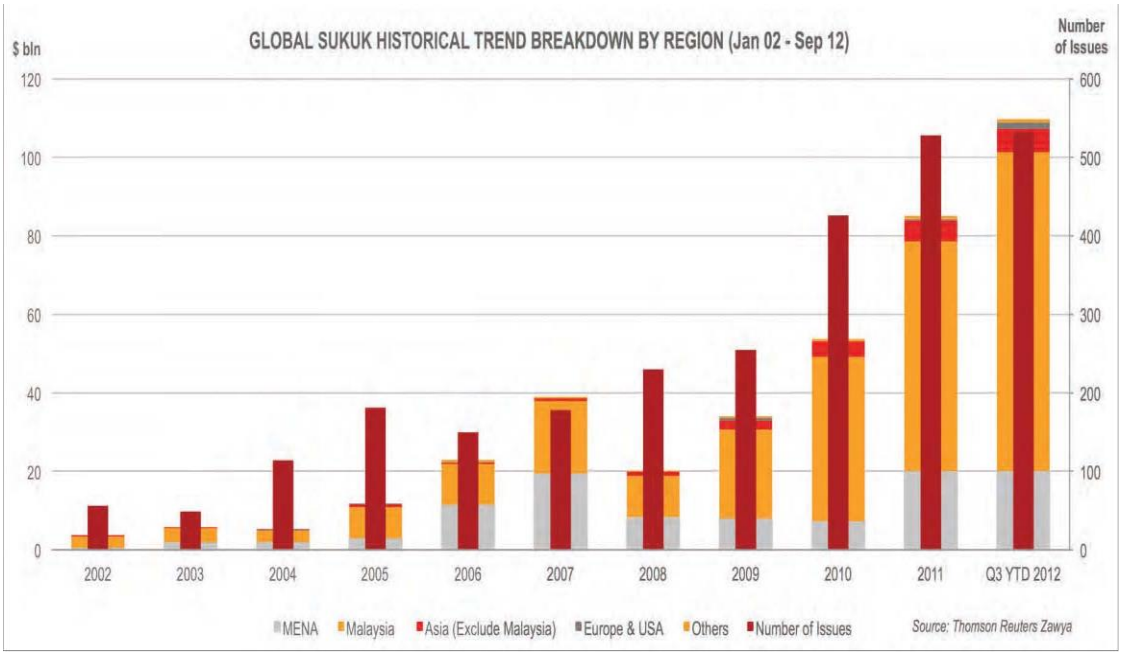

Figure 2.12
Global Sukuk Trend Breakdown by Region
(Source: Adopted from Thomson Reuters Zawya)

Figure 2.13 shows that the domestic sukuk market of Malaysia has grown gradually mainly because of the well-established regulatory framework that attracts both domestic and international issuers. In addition, the Malaysian government itself is the leading issuer of sukuk through Bank Nagara Malaysia which has issued 51% market share of all the sukuk issued from January 1996 to September 2012. In the last few years, Asian countries such as Singapore, Pakistan, Indonesia, Japan and Kazakhstan entered into the sukuk market.

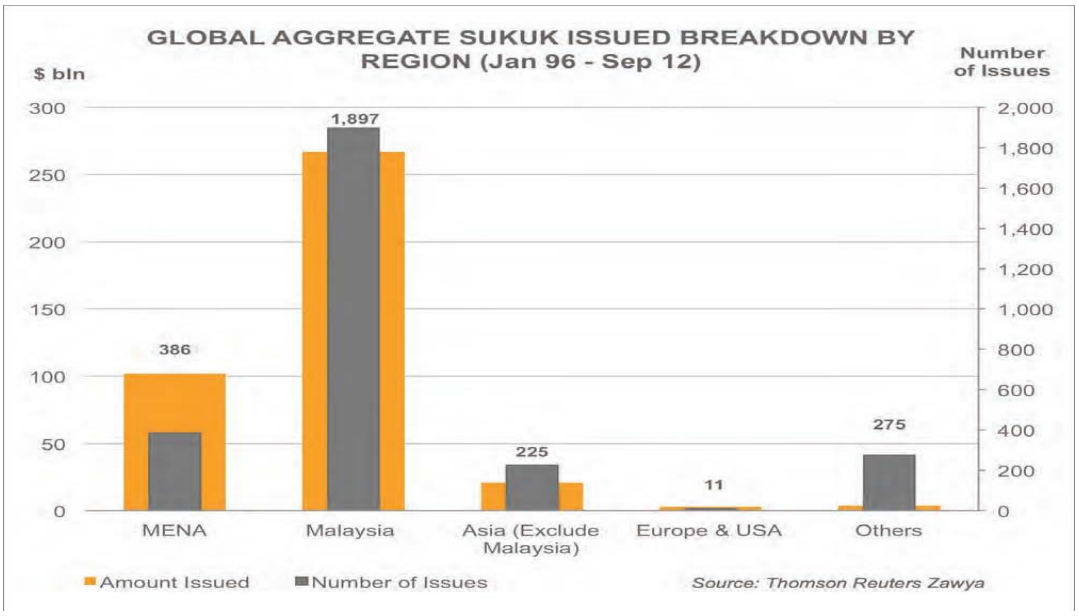

Figure 2.13
Global Sukuk Trend Break Down by Region
(source: Adopted from Thomson Reuters Zawya)

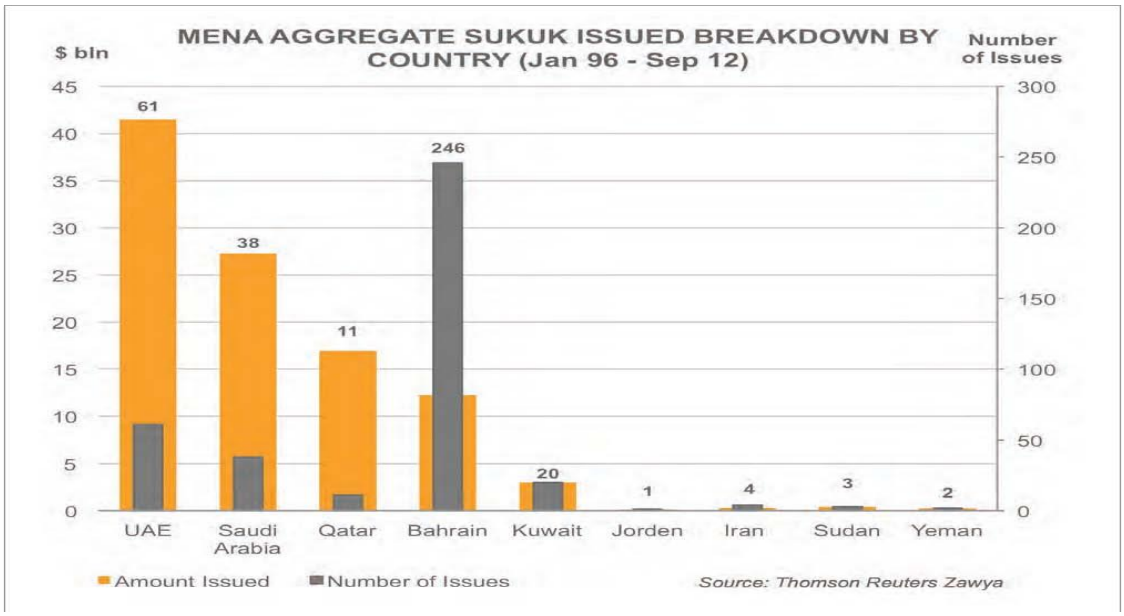

Figure 2.14
Mena Aggregate Sukuk Issued Breakdown by Country
(Source: Adopted from Thomson Reuters Zawya)

Figure 2.14 shows that in GCC region, Bahrain was the first issuer of sukuk. The Central Bank of Bahrain (CBB) regulatory issues salam and ijarah are usually oversubscribed. UAE is the leader in the Middle East and North Africa (MENA)[4]

4. The Middle East and North Africa (MENA) has a lot of vast reserves of petroleum and natural gas. Global economic stability depends on these vital sources.

region in term of sukuk volume , while Saudi Arabia has issued US$ 9 bn worth of sukuk in the first 9 months of 2012. Apart from this, Yemen, Iran and Jordan have also entered the sukuk market. In the Post Arab Spring era, numbers of North African countries are expected to promote Islamic finance. Among them Egypt is expected to issue sukuk in the coming year. Oman and Libya have also issued sukuk. Egypt and Oman have been identified as the most attractive market by lead arrangers and investors. Until mid-2011, Oman did not allow Shari'ah compliant banking and finance in the country. However, in order to stop the outflow of fund and avoid any political upheaval, the capital market authority of Oman finalized sukuk regulation in October 2012 (Thomson Reuters Zawya, 2013).

As stated in the statistics of the Global Investment House (2009), sukuk has been sinking in the ten countries that had issued sukuk in 2008. Of them, half of them were from the GCC. All countries experienced decline in issuance in terms of value except Qatar and Indonesia. Malaysia was the largest market raising US$ 5.5 bn from 54 issues. The UAE was the second largest market rising US$ 5.3 bn from 10 issues. Saudi Arabia raised US$ 1.9 bn from 4 issues. The issuance was the lowest in Gambia amounting to US$ 12.6 mn from 40 issues. Other countries were Bahrain, Indonesia, Pakistan, Qatar, Kuwait and Brunei.

Currency domination in sukuk has been identified as a predominant area. In most of the cases, sukuk issues are dominated in the countries' local currency in order to attract local investors. Malaysian Ringgit dominated nearly 65% of global aggregate sukuk because of the large number of domestic issuances in Malaysia as shown in Figure 2.15.

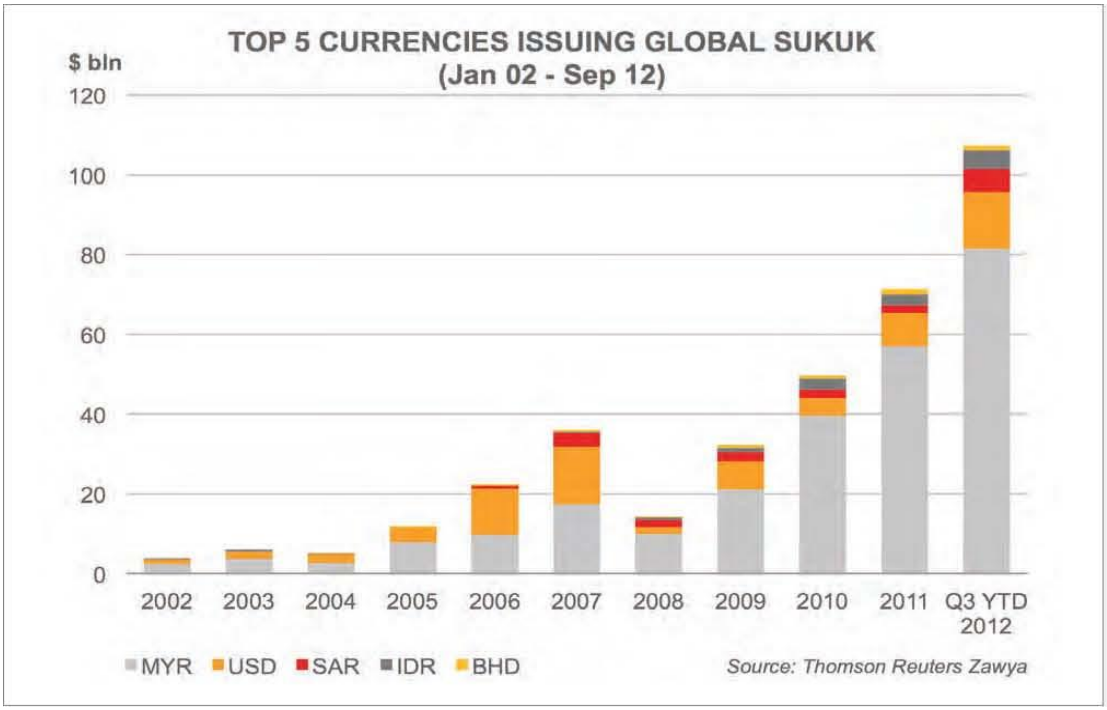

Figure 2.15
Top Five Currencies Issuing Global Sukuk
(Source: Adopted from Thomson Reuters Zawya)

Most international sukuk issuers deal is in the US dollar. US dollar makes it convenient for the government, bank and corporation to fulfill their financial needs and has lower currency fluctuation risk. As a result, US dollar stands to be the next major currency in the sukuk issues shown in the Figure 2.15.

In the GCC region, GCC currencies are growing in demand from local corporate in KSA, Qatar and UAE. However, most of the GCC currencies are relatively illiquid and have poor activity rate in the secondary market. A survey done by Thomson Reuters Zawya (2013) data showed that nearly 78% of the issuers prefer to deal in US dollar while 6% prefer sukuk in KSA Riyal. With related to the sukuk, global expansion in the international market is the issue of the currency denomination of sukuk. At the moment, US Dollar, Malaysian Ringgit, Indonesian Rupiah, GCC

countries' currencies and UK Sterling Pounds are some of the dominant currency denominations in the sukuk market as appeared in Figure 2.16.

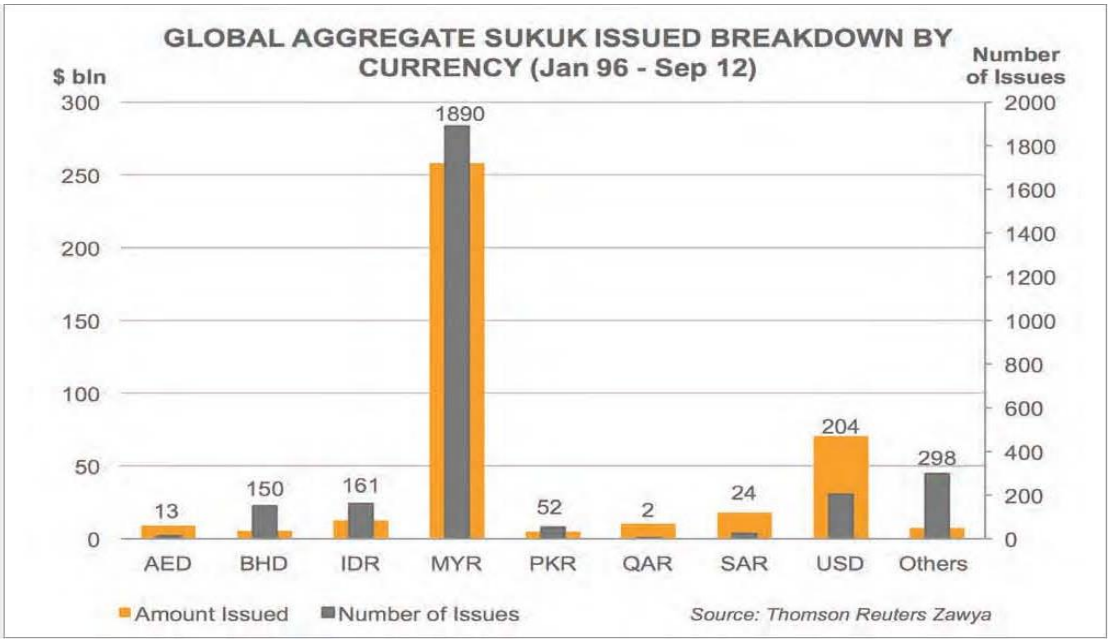

Figure 2.16
Global aggregate sukuk issued breakdown by currency
(Source: Adopted from Thomson Reuters Zawya)

The US Dollar was the currency of choice for global sukuk issuers from 2002 to 2007. However, since the recent global financial crisis, it has been declined in favour of local currency denominated sukuk. The percentage of US Dollar denominated sukuk declined to 41.8% in 2007 from 85% in 2002. Most sukuk issued in places such as Malaysia are denominated in domestic currencies, while any large sukuk issue aimed at global audience is Dollar denominated.

Damak and Esters (2010) mentioned that in 2008, the US Dollar continued to lose its position as the currency of choice for sukuk issuance accounting for only 10% of issued sukuk. However, in 2009, Dollar denominated sukuk issuance represented 30% of the issued sukuk.

The emergence of the local currency bond market is an important step in the maturity of local capital market. However, the sustainability of such market requires actively traded government debt market and some institutional and retail demand. Margolin (2007) discussed that the local currency bond market can help its financial stability by reducing currency mismatches and lengthening the duration of debt. Such market also helps economic efficiency by generating market determined interest rate that reflects the opportunity cost of funds at different maturity. At the same time, the absence of such market can lead borrowers to take risky financing decisions that create balance sheet vulnerabilities and increasing the risk of default.

The problem with issuance of domestic currency denominated sukuk is that it automatically restricts investors' pool. McNamara (2008) feels that not many European investors would like to have UAE Dirhams or Bahrain Dinar on their account. The US needs the GCC countries to retain its dollar peg because the US needs GCC funds to help it recover from the economic crisis. However, this should be noted that as long as the economies of the GCC continue to fund the US deficit, the dollar peg will remain for a long time. As long as this continues, Islamic financial institutions will have to continue with dollar as reserved currency of choice. In reality, this is not a bad thing because experts believe it will not be too long before dollar starts to strengthen again and for confidence to return. Looking into the new Islamic financial market in Asia such as Japan, Singapore and Hong Kong, it seems fairly certain that they will only issue instruments in dollar denominations. The world needs the lowest common denominator to execute international finance and it still is in the greenback.

Islamic Business and Finance (2008) states that there will be a significant share of sukuk issuers who continue to depend on the US dollar, mainly because they are financial projects in the gulf where the cost, in most cases, are denominated in foreign currencies. However, more local currency issuance can be expected wherever the pool of the underlined asset is denominated in local currency. McNamara (2008) quoted an example on sukuk issuance in local currency denomination which is worthy to mention. Almana group, A Qatar based trading, automotive and contracting company issued sukuk worth United Arab Emirates Dinnar (AED) 60 mn in Emirati currency. The Almana Group has a BBB+ rating with a stable outlook from capital intelligence. The issue was structured by GIB. It was the first time that a Qatari company has raised financing UAE Dirham, making way for a corporation in the region to tap into regional opportunities and liquidity. The sukuk matured in 2013 and paid a profit of 2.5% points over the three months UAE interbank offered rate and be listed on the Dubai Islamic finance exchange (DIFX).

In sukuk market, it is essential to know about the dominant issuer. According to Al-Amine (2012), the sukuk market was originally emerged of sovereign issuers. The governments of Malaysia, Qatar, Pakistan, Bahrain and Indonesia have all issued sukuk. Semi-sovereign sukuk from Dubai, UAE and the State of Sarawak have also entered the market. The German state of Saxony-Anhalt was the first non-Islamic sovereign sukuk issuers. There has been news that Iran and Turkey are also planning to enter the sukuk market. Even though sovereign sukuk issuances decreased at some points following the global financial crisis, issuance of sovereign sukuk has increased again. The large numbers of sukuk in the market now are corporate sukuk from GCC region and Malaysia.

According to the report of Thomson Reuters (2013), corporate sukuk issuances are higher than sovereign and quasi sovereign issuances. In 2007, corporate sukuk issues reached US$ 31.6 bn. while governments issued only US$ 3.6 bn. On the hand, the average values of sukuk issuances by sovereign and quasi sovereign institutions were US$ 214 mn and US$ 260 mn respectively. Sovereign institutions continued to issue sukuk despite the impact of the global financial crisis. In the first quarter of 2012, government institution held approximately 2/3 of market share which is a fall from 77% in 2011. Figure 2.17 shows the global aggregate sukuk issued breakdown by type of issuer.

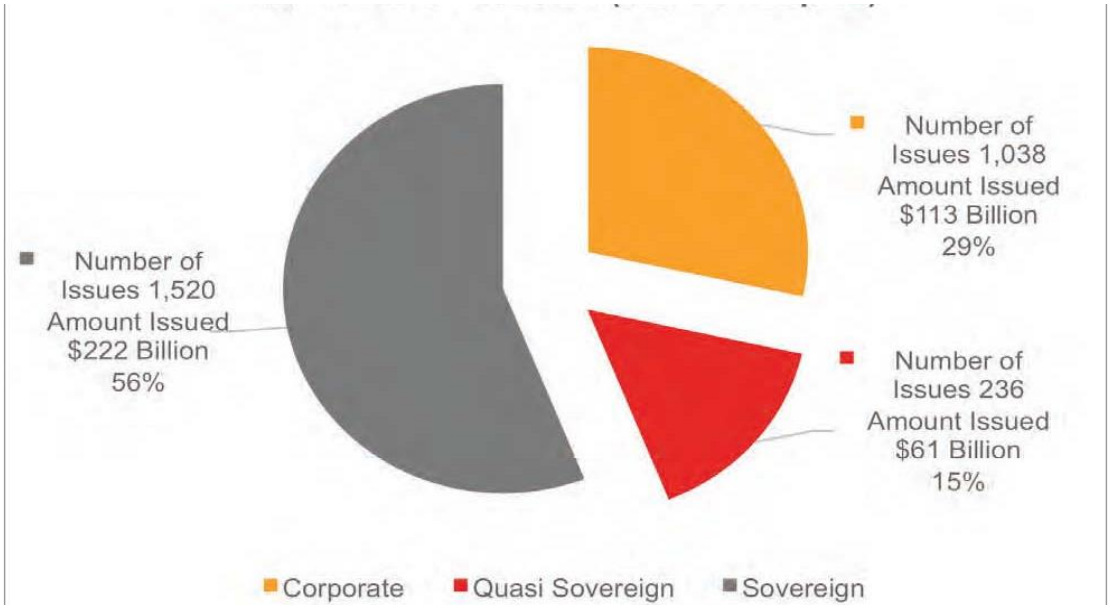

Figure 2.17
Global Aggregate Sukuk Issued Breakdown by Type of Issuer
(Source: Adopted from Thomson Reuters Zawya)

Figure 2.17 shows that the global aggregate sukuk issue of sovereign between 1996 and 2012 amounted to $ 222 bn from 1520 issues which are 56% of global aggregate sukuk. The global aggregate sukuk issue of quasi sovereign between 1996 and 2012 amounted to $ 61 bn from 236 issues which are 15% of global aggregate sukuk. The global aggregate sukuk issue of corporate between 1996 and 2012 amounted to $ 113

bn from 1038 issues which are 29% of global aggregate sukuk. Turkey entered the sukuk market in September, 2012 with the US$ 1.5 bn. worth of issuances. This was considered as a turning point to develop the sukuk market in Turkey. At the same period, Jordan also passed the law opening the way for sovereign issues. Sovereign issuances reached US$ 69 bn in September, 2012. A survey carried by Thomson reuters zawya data found that nearly 60% of investors prefer to invest sovereign sukuk while the rest prefer sectors which are semi-sovereign and state linked sectors because of lower risk.

Al-Amine (2012) argued that issuance of sovereign sukuk was pioneered by Malaysia in 2002. However, out of the 55 member countries of the Organization Islamic conference (OIC), only Bahrain, Malaysia, Qatar, Brunei, Pakistan, Indonesia and UAE have actually issued global sovereign sukuk.

Further, the researcher pointed out that one of the notable developments in the sukuk market, in general and particular, is the sukuk issued by the Central German State of Saxony-Anhalt which is the first European based sukuk. The five year Euro 100 mn. sukuk was managed and arranged by Citigroup and was marketed in the GCC countries, Malaysia, Turkey and the UK. It was subsequently listed on the Luxembourg Stock Exchange. It also opens the gates for European countries to issue sovereign sukuk that could be followed by corporate sukuk. It is important to note here that an East German state has issued sukuk ahead of Muslim countries such as Saudi Arabia, Iran, Kuwait, Turkey, Egypt, Oman, Morocco and Tunisia. These countries have the ability to issue sovereign sukuk considering their sovereign investment grade. But unfortunately, none of these countries have done so.

In 2003, Tabreed issued one of the first global corporate sukuk. It was considered ground breaking and a benchmark for the future corporate sukuk offering by opening the door for corporate sector to tap the fast growing sukuk market. The five year old corporate sukuk provides fixed coupons of 5.5%, which is a combination of Ijarah, Istisna and forward leasing contracts. Kuala Lumpur stock exchange (2002) reports that the plantation based conglomerate Kumpluan guthrie Bhd in Malaysia issued another ground breaking corporate sukuk based on Ijarah structure. The Ijarah sukuk was signed for a long time foreign currency. Islamic capital market rating of BBB+ by Malaysian rating corporation Bhd. The sukuk were issued to the company acquisition and operated in Indonesia. Eight financial institutions have agreed to become the initial purchasers of the first issue of the sukuk. According to Malaysia Rating Corporation Berhad (2002), the report on MARC states that the leased asset under the sukuk issue consists of Malaysian plantation land that operated in an ordinary course of business by Guthrie. The assets were first sold to global sukuk Inc (lesser).

Global Investment House (2005) reports that another significant but smaller corporate sukuk in the early days of the sukuk market is caravan sukuk. The issues were marketed as an ordinary sukuk as asset backed certificate and the first Islamic securitization. The sukuk was Saudi Arabian Riyal (SAR) 102 mn. and backed by pool of rental cars, limousines vehicles and lease agreement sold by Hanco. The three year maturity Shari'ah compliant transaction has an average life of two years and the return of 6%.

In the words of Al-Amine (2012), these corporate sukuk and others have opened up the ways for a larger and more sophisticated corporate sukuk that is to be issued from different corporate entities from different countries. Early corporate sukuk was small

in size as if they were designed for domestic markets or as a cautious way to test the market condition. However, the rapid growth and acceptance of sukuk as a global instrument aimed at international investors who have changed many things. The size of corporate sukuk is becoming much larger and issuance is in billions. These include issues such as DP world sukuk, Nakheel sukuk, Al Dar sukuk, Sabic sukuk, Dar Al Arkan sukuk and many others. The financial institution and government related bodies were the first to issue sukuk. Accounting firm issued 58% and 42% total issuance in 2003. The corporate sector has been the biggest contributor to the growth in the sukuk market since 2005.

Damak and Volland (2008) discussed that in 2007, issues by financial institution grew to strongly, accounting for 26.2% of total sukuk. They are likely to continue as the big issuers. According to the International rating agency, Standard and Poor's assets backed sukuk issued by a financial institution in the Middle East have great potential for growth. This is due to the increasing need to tap international markets to feed their impressive growth. The emergence and growth of sukuk instruments have revolutionized in Shari'ah compliant debt securities sector. They have provided opportunities for the development of secondary markets, which, in the long term, will match an established conventional debt market. Figure 2.18 depicts corporate aggregate sukuk issued with breakdown by industry.

Figure 2.18 shows that the corporate aggregate sukuk issued by industry from 1996 to 2012, in the financial sector, shown as US$ 47 bn of 215 (US$26.3 bn) of sukuk issuance in Malaysia and 56 (US$20.7 bn) in MENA market. The second biggest sector is transport showed in US$ 34.8 bn of sukuk issuance from 237 (US$25 bn) in Malaysia and 7 (US$9.8 bn) in MENA market. The power and utilities sector showed

US$ 26.7 bn of sukuk issuance from 216 (US$17.8 bn) in Malaysia and 11(US$8.9 bn) in MENA markets.

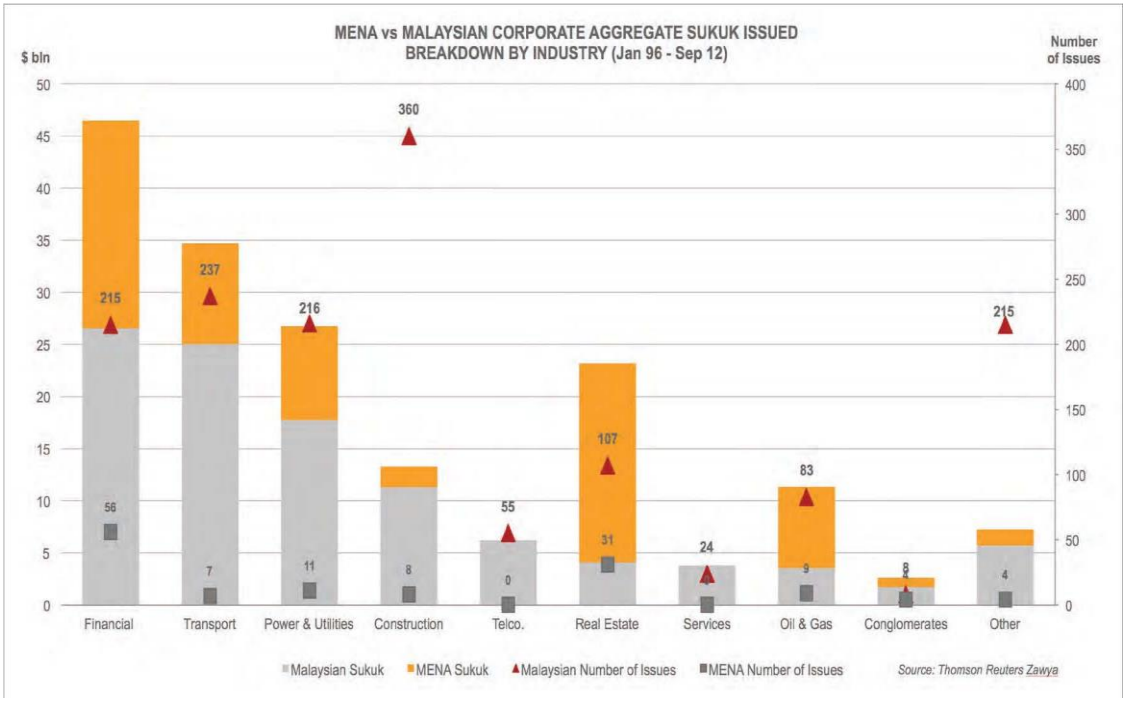

Figure 2.18
Corporate Aggregate Sukuk Issued Breakdown by Industry
(Source: Adopted from Thomson Reuters Zawya)

The construction sector showed 13.7 bn of sukuk issuance from 360 (US$11.6 bn) in Malaysia and 8 (US$2.1 bn) MENA markets. The telecom sectors showed US$ 6.8 bn of Sukuk Issuance from 55 in Malaysia, but no issuance in MENA markets. The real-estate sector showed US$ 23.8 bn of sukuk issuance from 107 (US$4.4 bn.) in Malaysia and 31 (US$19.4bn.) in MENA markets. The service sector showed an amount US$ 4.0 bn. of sukuk issuance from all 24 Malaysian markets. The oil and gas sector amount showed US$ 11.6 bn. of Sukuk issuance from 83 (US$3.8 bn.) in Malaysia and 9 (US$7.8 bn.) in MENA markets. Conglomerates sectors showed only US$ 3.4 bn. of sukuk issuance from 8 (US$2.8 bn.) in Malaysia and 4 (US$0.6 bn.) in MENA markets. Other sectors showed US$ 7.2 bn of sukuk issuance 215 (US$5.5 bn.) in Malaysia and 4(US$1.7 bn.) in MENA markets.

The vast majority of the sukuk issuance took place in Malaysia and the GCC. An overall sukuk issuance increased by 71% in 2007, over the previous year. The number of sukuk transaction, in 2006, was 109, but it increased to 119 in 2007. The average deal size also increased from US$ 175 to US$ 269.8 mn. Sector wise sukuk issuance showed the largest proportion being increased in the financial service sectors. Accounting sectors contributed to 31%, followed by real estate at 25%, and power & utilities at 12%. Cumulative global sukuk increased by US$ 30.8 bn. in 2007, as stated by Bloomberg. Nanbiar (2008), in his research, pointed out that in the gulf countries, growth in terms of value increased 75% from 2006 to 2007.

An Emirate Business (2010) reports that in 2009, sukuk issuance nearly doubled from US$ 14.9 bn in year 2008 to US$ 23.3 bn. The increase was mainly in GCC and Malaysia. Power, oil and gas and financial services became the dominant sectors for sukuk issuance. According to Bank of America Merrill Lynch, notably in 4th quarter of 2009, Malaysia stayed the largest market, contributing 16% of total issuance whereas UAE entered market in the last quarter and recorded 26% of the shares. Bahrain was the 3rd largest issuer with 5% of the share, followed by the USA. The recovery in the third quarter of 2009, according to Hijazi (2010), has been genuine since the collapse of Lehman brothers and the critical AAOIFI statement on the Shari'ah compliance of sukuk.

Damak and Esters (2010) discussed that, in 2009, the number of sukuk issues was only 140 as compared to 160 in 2008. So, the increase of sukuk issuances in 2009 was in terms of value whiles the banking assets in the GCC countries declined by 1.1%. Assets of the 5 largest Islamic bank increased by 1.3%. Sovereign and government related issuers became more common in 2009 as the need to launch a variety of

funding programs to cover up the decline in global economic activity. It is viewed that the increase in sovereign government issuances is a long awaited development in order to create more efficient and stable sukuk market.

Some of the most recognized sukuk in 2009 was the Saudi electricity sukuk for SAR 7 bn. The issue attracted domestic investors consisting of financial institution reaching nearly three times the offered sizes. This was the reflection of the company's direct and indirect government ownership which is over 81% and robust stable business. As observed by Hardi and Volland (2009). It was also witnessed, in 2009, the first Indonesian cross border sukuk worth US$ 650 mn. In June 2009, Bahrain issued a 5 year US$ 750 mn. sukuk. These sovereign issuances brought some certainty to the viability of the sukuk market and gradually helped to regain investors' confidence. Another noted issuer was the Islamic development bank (IDB) sukuk, in the same year, IFC also issued US$ 100 mn of sukuk. Petronas sukuk was other remarkable

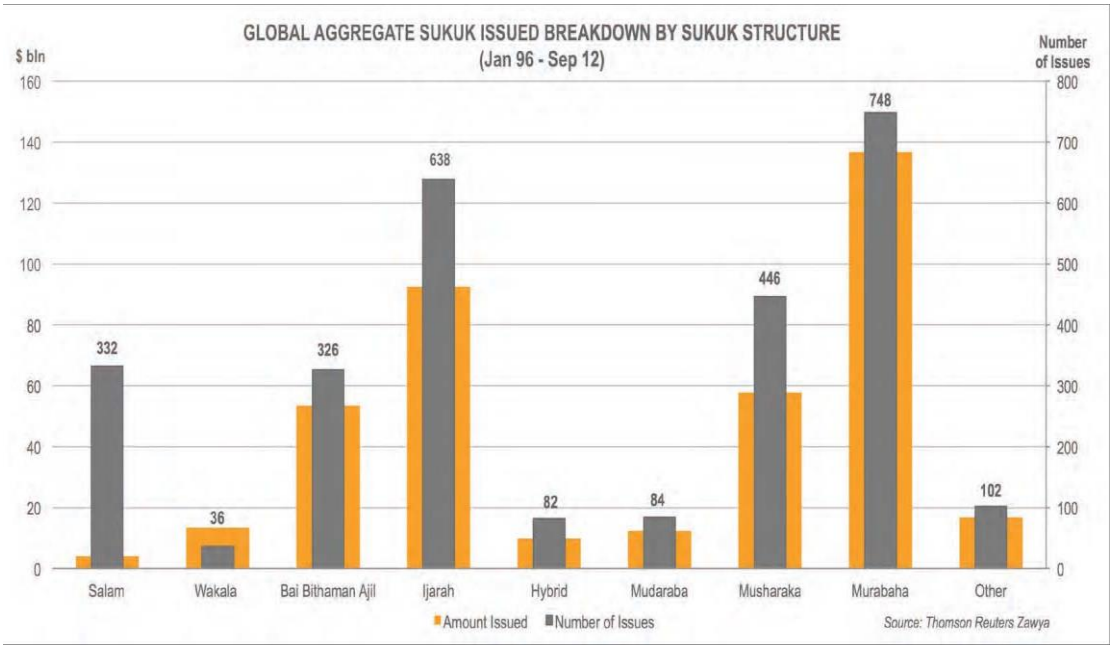

Figure 2.19
Global Aggregate Sukuk Issued Breakdown by Sukuk Structure
(Source: Adopted from Thomson Reuters Zawya)

issuances in 2009. The US$ 1.5 bn. sukuk Ijarah offering due in 2014 was triple listed on the Bursa Malaysia, the Luxemburg stock exchange and Euro MTF market (Abadir, 2009).

Since 2002, the dominant structures in sukuk market were the 748 murabaha issuances that took place. Of which, only 12 were issued in the Middle East. The remaining 736 was issued in Malaysia. The survey by Thomson reuters zawya data found that about 63% of investors prefer to invest in ijarah sukuk. It is worthy to notice that the biggest issues of the time were worth US$ 9.06 bn sukuk issued in 2011 by Qatar Central Bank also structured as an ijarah sukuk as shown in Figure 2.19.

The musharaka structure became unpopular recently after AAOIFI announcement in 2008.It is permissible for an originator to grant a purchases undertaking to the trustee to purchase the musharaka assets for any amount other than the trustees' share of the market value of the musharaka assets at the time of sales. From January, 1996 to September, 2012, the market share of musharaka was US$ 57.8 bn. representing 14.57% of total issuances. In the recent past, wakala structure has become widely used. According to Thomson Reuters Zawya data, there has been an increase in the use of wakala structure from US$ 5.9 bn. in first 9 months of 2011 to 6.8 bn. in the first 9 months of 2012. Interestingly, wakala structure is treated as Shari'ah compliant both in the GCC region and in Malaysia. The wakala structure also enables an originator to utilize certain assets that cannot be treated on the secondary market if structured losing murabaha and istisna contracts.

In 2012, Malaysiya SME bank issued the largest wakala sukuk worth US$ 5 bn in the local market. According to a survey by Thomson Reuters Zawya data, wakala

structure is the second preferred one after ijarah. A number of sukuk structures have developed in the industry. The ijarah structure was the dominant in the early days of the emergence of the market. However, in 2007, musharakah structure became dominant in size, with US dollar 12.9 mn. of issuance followed by ijarah sukuk worth US dollar 10.13 mn issuances. The ijarah structure was most frequently used to issue, with 54 deals whereas the Musharakah structures were issued only 22 times (Global Investment House, 2009).

Furthermore, Global Investment House (2009) notes that, in 2008, there were 5 dominant structures whose market share of the total Dollar amount exceeded 90%. They were ijarah, mudaraba, musharakah, al istithimar and murabaha. Of these structures, only murabaha recorded growth by 59.3 % from its level of US Dollar 512.3 mn in 2007 to reach US dollar 816 mn. in 2008. The musharaka structure was the highest in 2007 with US dollar 12.4 bn. worth of sukuk issue. But, it fell by more than 83%, reaching US dollar 2.1 bn. in 2008 and became the third ranking structure in terms of dollar amount. Other structure declined including mudaraba at 68.6%, al istithmar at 34.4% and ijarah at 5.5%. Ijarah was more favorable types of sukuk in terms of dollar amount a number of issuances. There were 53 ijarah sukuk issued that amount to US dollar 7.2 bn. or 47.6% of total amount issued. 60.3 % of them were corporate sukuk.

Damak and Esters (2010) state that Ijarah structures continued to be dominant in 2009 accounting for almost 46% sukuk issuance while the balance was based on the structures such as murabaha, musharaka, mudaraba, salam and ististhimar. McNamara (2006) stated that the US dollar 270 mn. 10 years musharaka issued by Qatar real investment company was oversubscribed by 400%. Similarly, the US dollar 100 mn.

sukuk offering by Kuwait based commercial real estate company closed in with over subscription of 136%. Another over subscription is Dar Al Arkan. The second was ijarah sukuk oversubscribed by 209%. The institutional fund allocation was oversubscribed by 515% with an overall over subscription 423, as reported by (Rafique, 2008).

Listed sukuk in stock exchange has started since 1996. Listed sukuk are more liquid, tradable and attractive. In line with conventional bonds, global issuers list their sukuk on domestic and international exchanges as a way of boosting demand for their papers worldwide. Global investors believe that listed sukuk are considered more liquid, tradable and attractive. Most domestic sukuk issuances are listed on their home stock exchanges led by Malaysia and Dubai. However, the most international sukuk issuances that are denominated in US dollars are listed either on the Luxembourg or London Stock Exchange. There are two jurisdictions competing to become Europe's Islamic finance hub. According to Thomson reuters survey findings, both investors and lead arrangers prefer listed sukuk. However, the most investors and sukuk traders use over the counter methods, making it difficult to forecast trading volumes and sukuk exchanging hands as stocks.

Table 2.2 shows that global aggregate sukuk listed on stock exchanges from January 1996 to September 2012 amounted to $100.26 bn. or 25% of global sukuk market share. This is made up of a total number of 224 sukuk. Almost 75% of aggregate global sukuk issued over two decades were not listed. These unlisted issues amounted to approximately $296 bn. representing 2570 sukuk issued both domestically and internationally. Indonesia issued the first listed sukuk in 2003. Its stock exchange has become one of the main exchanges to list sukuk with a total of 53 sukuk for the period under consideration.

Table 2.2
Global Aggregate Sukuk Issued Breakdown by Listing Stock Exchange

LISTING STOCK EXCHANGE	NUMBER OF ISSUE	AMOUNT ISSUED ($ MILLION)
Bahrain SE	27	4,141
Bursa Malaysia	19	8,048
Cayman Islands Stock Exchange	2	10
Dubai FM	3	1,450
Dubai FM, London SE	2	1,931
Dubai FM, Luxembourg SE	1	1,000
Hong Kong SE, LFX (Labuan), Bursa Malaysia	5	4,358
Indonesia SE	53	4,985
Irish SE	8	3,703
Kazakhstan SE	1	79
Khartoum SE	1	173
LFX (Labuan)	1	150
LFX (Labuan), Bahrain SE	1	600
LFX (Labuan), Bursa Malaysia	1	79
London SE	41	27,029
London SE, Bursa Malaysia	2	1,250
Luxembourg SE	9	2,887
Luxembourg SE, LFX (Labuan)	2	1,050
Luxembourg SE, LFX (Labuan), Bahrain SE	1	250
Luxembourg SE, LFX (Labuan), Bursa Malaysia	1	1,500
Nasdaq Dubai	14	13,709
Nasdaq Dubai,Bahrain SE	2	250
Nasdaq Dubai,Hong Kong SE,LFX (Labuan), Bursa Malaysia	1	850
Nasdaq Dubai,Irish SE	1	650
Nasdaq Dubai, LFX (Labuan), Bahrain SE	1	1,000
Nasdaq Dubai, LFX (Labuan), Bursa Malaysia	1	550
Nasdaq Dubai, London SE	5	4,764
Nasdaq Dubai, London SE, Bursa Malaysia	1	500
Saudi SE	8	9,673
Singapore SE	4	1,796
Singapore SE, Bursa Malaysia	1	158
Singapore SE, LFX (Labuan)	1	300
Singapore SE, LFX (Labuan), Bursa Malaysia	2	1,220
Unlisted	2,570	296,578
Vienna SE	1	166
Grand Total	2,794	

Source: Thomson Reuters, 2013

The sukuk market faced its real test in 2008. There was a dramatic decline in sukuk issuance in the year. This was due to the combined effort of the global credit crunch, dying up of liquidity, widening of credit spread and investors' wait-and-see attitude. It was expected that over US$ 30 bn of sukuk issuance would be done. However, due to unfavorable conditions in financial markets, most of those deals were failed as mentioned by Flijazi (2009). There is a wider spread belief the sukuk is illiquid. Such a belief exists because the buy and hold culture still exist in the sukuk market. However, the reality is that changes have already taken place. The regional market is experiencing a level of liquidity. Some market makers trade more than 100 Middle East debt instruments. Price of these instruments is quoted almost 24 hours a day.

At the moment, the sector is dominated by a limited number of institutions as market makers. At the same time, international investors are also interested in the secondary sukuk market. The main players are European funds and to some extent Asian funds. From the Middle Eastern players, there is an interest for the treasuries and the banks. According to Ijtehadi (2007), some estimate the value of average daily sukuk traded around US $ 80 to 100 mn. in May 2007. Walling (2005) believes that there are many indications on the number of sukuk issued. Both sovereign and corporate will continue to increase and provide liquidity in the market and help the development of an active secondary market for Islamic instruments. Therefore, the development of secondary markets is just a matter of time. As more and more issues come to the market, there will be different opportunities for the investors choose from and the culture of buy and hold that will disappear soon.

There are several factors that seemed to have contributed to the state of illiquidity and lack of any active secondary market in sukuk so far. First, Arabian Business (2009)

reported that the sukuk pricing has been distorted by the secondary market, they were as only 25% of listed once. The others are not traded. This could destroy pricing. Second, according to Gore (2007), the lack of standardization and documentation is another reason for the lack of a secondary market. Sukuk differ very much in structure. It is not a standard unified instrument like a five years Euro bond. Third, the buy and hold mentality of many investors has also been a reason that prevents an active secondary market. Fourth, Cox (2007) believes that the better regulation and standard settlement procedures and market makers who are prepared to step in and provide liquidity market itself will help the development of a robust secondary market. Even though the secondary sukuk market is not so developed as the conventional bond market, there are signs as the secondary market will develop in the course of time.

Maturity profile and coupon type in sukuk market are also important to this study. Investors could face future reinvestment and interest rate risk. Fixed income instruments are usually structured to serve long-term investors. Yet, most sukuk are still trapped in the medium term tenors of five to ten years. Very few international sukuk serve the long-term. Tamweel's non-convertible sukuk maturing July 2037 is exceptional. The predominance of medium term papers might be attributed to issuer funding requirements, shari'ah compliance issues and trust asset coverage. However, there are many longer-term sukuk in Malaysia where the domestic market is more active and mature.

The most outstanding international sukuk are expected to mature within the next three to five years being recently issued five and ten-year papers. The sukuk survey has found that many investors prefer to invest in medium term notes that most, probably, due to interest rate risk. Lead arrangers, on the other hand, expect longer tenor

issuances of five to ten years to meet issuers' funding requirements. Nearly, all of these recently issued international papers carry fixed coupons. Most of them were issued in a low interest rate environment during the financial crisis. Investors may have been looking for high fixed rates, but issuers took advantage of low Libor rates to issue their fixed coupon sukuk, in turn, fixing their cost of funding. This is shown in Figure 2.20.

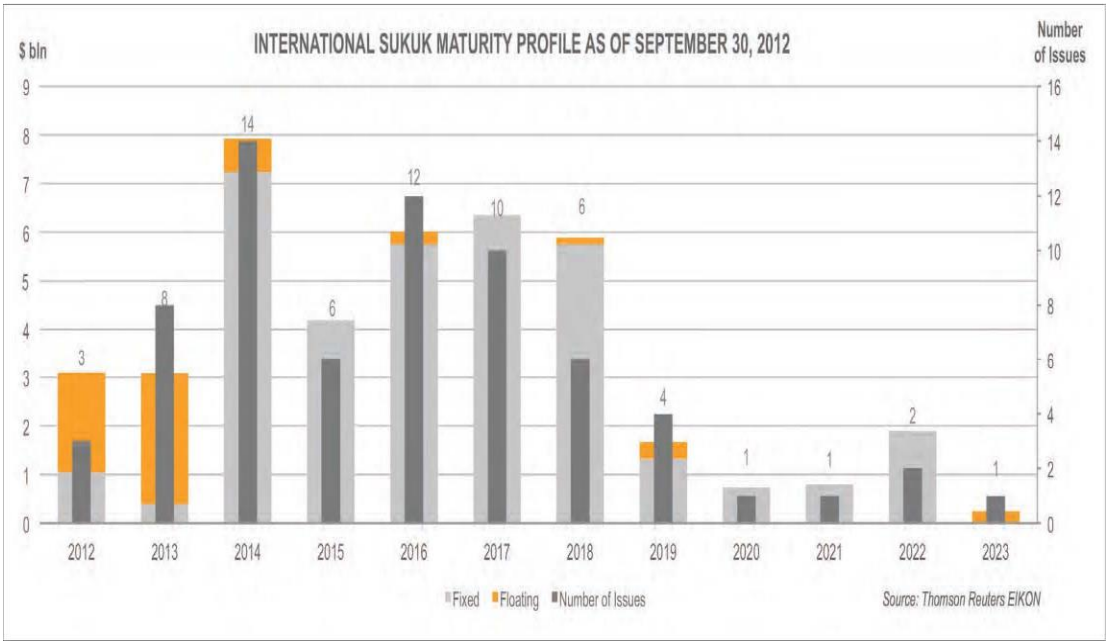

Figure 2.20
International Sukuk Maturity Profile
(Source: Adopted from Thomson Reuters EIKON)

On the other hand, issuers found four to five percent average returns during this period and demanded more fixed coupon sukuk. According to Thomson reuters' findings, most of these investors have enjoyed reasonable fixed returns in the past couple of years, plus high capital gains due to heavy market demand. However, these investors are expected to face future interest rate risk once the global markets start to recover. However, if they have entered into an asset swap profit agreement to hedge their interest rate risk, with Libor declining; their hedging cost will be too expensive, particularly, for Islamic derivative instruments.

The credit crunch by the end of 2007 slowed down the sukuk growth. As liquidity dried up and credit spread widened some sukuk issues were postponed while the rate of return offered to investors by some sukuk issuers had to be raised. Listana (2008) states that Saudi Basic Industry Corporation (SABIC) had to raise the return from 30 to 40 basis points (bp) over Libor. Similarly, Jebel Ali Free Zone (JAFZ) had to pay at L130 bp. above Libor. The credit crunch also raised the rate of return of Ithmar Bank US$ 300 mn. Sukuk and national bank of Abu Dhabi US$ 1.7 bn. bond program. Amlak which was merging with Tamweel had to delay the issues of US$ 260 mn. mortgage back sukuk schedule for the end of 2007 to early 2008, while Dubai electricity and water delayed US$ 2.5 bn. sukuk that it had planned. In August, 2007, Malaysia's MISC deferred the sale of its planned US$ 750 mn, 10 years dollar denominated bond issue as per Listana (2008). Furthermore, the HSBC DIFX sukuk index showed the spread over liber on sukuk from 62 bp. on June 1 to 117 bp. by end of August, jumping to 174 bp. by end of December.

According to Bahrain Tribune (2008) the credit crunch delayed the issuance of some sukuk and raised prices of some others. But, on the other hand, the impact of sukuk market had been manageable. Moody (2009) observed that an outstanding Asian currency dominated sukuk (namely Malaysian - Ringgit, Pakistani - Rupees, Indonesian- Rupiyah and Brunei - Dollar) grew by 50% from U$$ 43.6 bn. at the end of 2006 to U$$ 65.3 bn. at the end of 2007. While in 2008 the market contracted slightly by 1.5% to U$$ 64.3 bn. at the end of 2008.

2.8 Chapter Summary

This chapter summarizes the evolution of Islamic finance since 1996. Islamic finance became popular 2002 onwards. But, sukuk market became boomed after the global

financial crises. The concept of sukuk market has been defined literally by several authors. For instance, Asaria and Mohammed (2005) and IFSB (2009). Sukuk has been differentiated from conventional bond comparison. AAOIFI plays major roles on sukuk. AAOIFI structure clearly shows these roles in this chapter. Several different types of sukuk such as ijarah sukuk, musharaka sukuk, mudaraba sukuk, salam sukuk, murabahah sukuk, istisna sukuk, and hybrid sukuk. From the inception, Sukuk market has evolved geographically, Asian countries such as Malaysia, Indonesia, Singapore, Hongkong, GCC and West such as Great Britain, Irish, Luxembourg etc. are the main sukuk markets at the moment. Parallelly, there are emerging markets within this region while Africa seems to be region for future sukuk market.

CHAPTER THREE

REVIEW OF LITERATURE

3.1 Introduction

This chapter outlines about the theoretical framework for the study. It outlines about theories of risks in the bond market as posted by several authors are discussed. The relevant empirical evidences of risk factors in the sukuk structure are outlined**.** The various methods used for measuring risk used by previous studies are also presented in the later part of this chapter.

3.2 Theories of Risks in Bond Market

In finance, any investments are influenced by various economic factors. As such bond market are also affected in the same manner. The arbitrage pricing theory clearly shows the link between economic factors and market information and the expected return of an investment. Arbitrage pricing theory (APT) was developed by Ross (1976). This theory clearly explains the factors which may affect the expected return of an investment. It is a general theory of pricing asset. This means that the expected return of a financial asset is modeled as a linear function of multi economic factors. These factors can be various macro-economic factors or theoretical market indices. A factor-specific beta coefficient can represent the sensitivity to changes in each factor.

Fabozzi (2007) stated that, the risks associated with investing, bonds, theses risks included namely, interest rate risk, call and prepayment risk, yield curve risk, reinvestment risk, credit risk, liquidity risk, exchange rate risk, volatility risk, inflation or purchasing power risk, event risk and sovereign risk. This theory is the appropriate

model to be applied in this study. Based on this theory, the macro economic factors and market indices which may determine the sukuk or bond investment return may be interest rate, inflation rate, dollar rate (exchange rate), maturity rate, size risk factor, liquidity rate, consumer confidence rate. Evidences supporting to this model and literature are reviewed in the preceeding sections.

Further, Fabozzi (2007) found that numbers of risks are idendified in the bond market and also all types of bonds have a number of risks of investing as follows:

a) Interest rate risk refers to the price of a typical bond will change in the opposite direction to change interest rates or yields thus, when interest rates rises, bond prices falls. Conversely, when interest rates decline bond prices rise. According to Investopedia (2009), it has been outlined that there are different types of risks of investing in a bond. Interest rate risk is the most well known risk in the bond market. It is the interest rate risk that bond prices fall when interest rates rise. Several factors such as the demand for, and supply of, money in the economy, the inflation rate, the stage that the business cycle is in as well as the government's monetary and fiscal policies may determine the market interest rates. Fma (2012) indicated that, interest rate risk is where the interest rates rise when one locks the money. This refers to that you do not earn as much as money one would have at the highest rate. As far as the interest rate risk, it is the possibility that the value of an asset varies owing to market interest rates. Grumman (2013) stated that, when there is a change in the general level of interest rates in the market place it is known as interest rate risk.

b) Duration risk means that the modified duration of a bond is a measure of its price sensitivity to interest rates movements. On the basis of an average time to maturity of its interest and principal cash flows it occurs.

c) Reinvestment risk is that when interest rates decline investors have to reinvest their interest income and any return of principal. It may be either scheduled or unscheduled at lower prevailing rates. Further, Investopedia (2009) mentioned that, the risk that there is a reinvestment proceeds that comes from a bond at a lower rate than the bond originally provided.

d) Inflation risk refers that inflation will cause tomorrow's dollar to be worth less than today's in other words, it reduces the purchasing power of a bond investor's future interest payments and principal, collectively known as cash flows. Inflation risk refers to when the economy declines the rate of price increases and succedingly, the returns associated with the bond also decline. There is the greatest effect on fixed bonds that have a set interest rate (Investopedia, 2009). Fma (2012) stated that, does not earn enough profit is the inflation risk. This is one's investment that does not earn enough to keep up with inflation. According to Grumman (2013), as observing inflation or purchasing power risk, it is the risk that the investment on return fails to outpace inflation. There is a close association of this type of risk that is most closely associated with cash/ stable value investments. Thus, although one may think that a traditional bank savings account is relatively risk free, one actually could be losing purchasing power unless the interest rate on the account that exceeds the current rate of inflation. Fiorillo (2013) pointed out

that, when the rising costs of inflation out paces the growth of investment over time inflation risk arises.

e) Market risk is the risk that the bond market as a whole would decline, bringing the value of individual securities down with it regardless of their fundamental characteristics. Fma (2012) explains another form of market risk that, economic risk arises when the economy is or is not doing well. Such risk could affect the value of investment. The risk affecting a particular industry is termed as industry risk. In an industry, there may be shortages of raw materials or changes in consumer preferences. According to Grumman (2013), the value of the investment that decline as a result of market conditions is the market risk. Further, Grumman (2013) explains that, when there is an uncertainty about a country's political environment and the stability of its economy this is termed as country or political risk. Emerging markets represent this type of risk. As pointed out by Simplilearn (2013), it has indicated that the high-priority risk types will be instrumental for financial risk for every business. Market movements cause financial risk. A host of factors are included into this market movement. On the basis of this, there are two types of financial risks. First is the market risk. Movement in prices of financial instrument causes market risk that can be classified as directional risk and non- directional risk. Movement in stock price, interest rates and more causes the directional risk. Second is the volatility risks that risks that are non-directional risks. According to Fiorillo (2013), when stock or bond prices drop and it appears to lose money on investment, market risk arises.

f) Selection risk refers to the risk that an investor chooses a security that under performs the market for reasons that cannot be anticipated.

g) Timing risk refers to the risk that an investment performs poorly after its purchase or better after its sale. Fiorillo (2013) stated that, there are two ways for timing risks. First, when share prices hit their peak an investor has to invest a large sum of money that generates risk. Second, when one needs to access one's money to pay for retirement or college expenses during a temporary market setback he has to lose money on his investment.

h) Legislative risk is that indicates that there is a change in the tax code that would affect the value of taxable or tax-exempt interest income. According to Fiorillo (2013), the value of a bond changes from time to time if it is issued to the time to mature is called the legal risk. When laws are imposed by the government it may cease to end. This type of risk is called legislative risk.

i) Call risk is the risk of corporate, municipal and agency bonds that have a call provision. They are entitled to their issuers to redeem them at a specified price on a date prior to maturity. Investopedia (2009) stated that, call risk is the risk that the issuer of a bond will be charged for that. Call provisions represents callable bonds. The bond issuer is allowed to purchase the bond back from the bondholders. Then the agreement between bond holder and the issuer becomes an end.

j) Liquidity risk is the risk that investors have difficulty in finding a buyer. When investors want to sell they may be forced to sell at a significant discount to market value. Fma (2012) stated that, liquidity risk is that there may not be buyers who are interested in investment if one wants to sell. The insolvency risk is included in this type of risk. This has the possibility of a company where one has invested ceasing to trade. It is declared that the insolvency appears. Therefore, it does not meet its commitments. When there is possibility that there is no need to buy or sell a certain asset for lack of sellers or buyers. This type of risk is termed as liquidity risk. There may be suffering of an excessive loss which relates to its real worth in a transaction in a market. In the market, sellers or buyers may suffer from this liquidity risk.

k) Credit risk is the risk where a borrower is unable to make interest or principal payments when they are due. Fma (2012) mentions that, credit risk is that the organization may not be able to repay its debts. One might lose money. When there is a possibility of a debtor not paying the creditor the amount owed, including interest is termed as credit risk. Grumman (2013) stated that, when the issuer may be default on periodic interest payments and/or the repayment of principal it refers to credit risk. Fiorillo (2013) pointed out that, credit risks are categorized into sovereign risk and settlement risk. Credit risk is the risk that the company or government has inability to repay principal along with interest.

l) Default risk is another type of risk that has the possibility that a bond issuer will be unable to make interest or principal payments when they are due.

Event risk is another type of risk that a leveraged buyout, debt restructuring, merger or recapitalization is undertaken by a bond's issuer. Investopedia (2009) stated that, in case of a default risk, the contractual interest or principal on the bond face the inability problem that the bond's issuer faces in a timely manner or at all.

m) Exchange risk refers that, the risk of receiving less of the domestic currency when investing in a bond issue that makes payments in a currency other than the manager's domestic currency. Fma (2012) stated that, risk is affected by value change is currency risk. For example, the risk that one's investment is affected by changes in the value of the New Zealand dollar. As pointed out by Barclays (2013), there is a possibility that a fall in value or price of assets traded on financial markets. Exchange risk is one of the risks that include this type of risk. A fall in the value of assets is denominated in a foreign currency since there are variations in the exchange rate. Grumman (2013) pointed out that, the risk of exchange rate affects the return.

n) Difficulty in foreign exchange policies causes sovereign risk. On the other hand, failing to fulfill the obligations by another party generates settlement risk.

o) Legal constraints such as lawsuit results in legal risk. In particular, whenever a company needs to face financial loses out of legal proceeding, it is legal risk. The value of a bond changes from time to time if it is issued to the time to maturity is called the legal risk.

p) Operational failures such as mismanagement or technical failures generate operational risk.

q) Fraud risk and model risk are subject to the category of operational risk. Fraud risk is generated by lack of controls.

According to James, William and Michael (2012), financial risk is comprised of number of risks, such as credit risk, interest rate risk, currency risk, equity risk and commodity risks as included in market risk. Refinancing risk is incorporated into liquidity risk. Legal risk, model risk, political risk, valuation risk, reputational risk, volatility risk, settlement risk, profit risk and systemic risks are included into the sort of operational risk. Thus far, Theories of risks in bond market have been discussed in this section. In the next section, researcher is to discuss about risk in the sukuk market.

3.3 Risks in the Sukuk Market

The risk of sukuk market varies between market, countries, maturity, currency, rating, sectors and structures of the sukuk. However, this study focus on risk related to the sukuk instruments directly. For instance, credit risk, counterpart risk, operational risk and the market risk, in addition to legal risk, taxation risk and liquidity risk. If companies want to carry out better risk management they have to identify risks associated with the sukuk which is the first and most important step. There is a need to properly understand about the risks. If organizations fail to carry out risks properly hedging or managing those risks become difficult (Haral, 2010). Sukuks have numerous risks. For example, risks that are associated with poor regulations of the

sukuk mechanisms. There is potential for sukuks that are not commonly tradable in the secondary market. So, there is the risk of liquidity. Of course, one of the most important risk is the Shariah compliance risks (Mehmood, 2010); (Razaq, 2010); (Haral, 2010). Razaq (2010) indicated that "the most important risk to the sukuk market is the legal risk. It needs to be dealt urgently, otherwise, it will be very bad for the growth of sukuk market".

a) Rate of return risk in sukuk is similar to interest rate risk in conventional bond. Sukuk issuances which are based on fixed rate are exposed to risk in the similar way as fixed rate bonds are exposed to interest rate risk. Sukuk are also in directly exposed to interest rate fluctuation through the benchmarking with London inter-bank offer rate (Libor). The nature of sukuk is that they are affected by fluctuation in the Libor rate or even other markets rate. Every contract benchmarked with Libor carries a risk that in the future, whenever rate raises issuers should not completely expect for enough return as it depends on the conditions of the future market.

   As discussed by Tariq (2004), the issuers of sukuk will need to respond to fluctuation in Libor as any raise in income will have to be common with the investors. In the sukuk, a portfolio with a hybrid of ijarah or murdbahah or istisna repricing of murdbahah contract is not possible as debts are non-tradable except at par. Therefore, murdbahah contracts expose the issuers and buyers to a considerable profit rate risk indirectly. According to Al-Amine (2012), any increase in interest rate directs to the decrease in the fixed returns of sukuk values. All fixed rate of return assets, whether it is ijarah, istisna,

salam or any other source have to face this risk. There is also an investment risk and opportunity cost of investing new rate, mainly, if the assets are illiquid. Depending on the maturity period, the intensity of the risk will vary. Suppose the sukuk is for five years, the investors will face the reinvestment risk throughout the five years. Any adverse risk of change in rates in the market will also have an effect on the credit value of the sukuk. They will also directly raise credit risk. There is a fixed rate of return for sukuk, which are designed in fixed terms. This rate of return is exposed to the interest rate risk like the same way as bond. When there is an increase in interest rate which will result in a decrease in sukuk price. Vice versa, when there is a decline in interest rate which will result in increase in sukuk price (Haral, 2010). In most of the cases, this is the case of asset based sukuk (Mehmood, 2010). Asset backed sukuk are based on the performance of the real underlying assets. They are not subject to this risk (Razaq, 2010); (Cheema, 2010); (Hashmi, 2010). Interest rate risk exposes to due to their benchmarking with London inter-bank offer rate. Since Libor has been exposed to certain risks. They can vary unexpectedly. Sukuk issuer is affected by this. When there is any increase in earnings, they will have to be jointly shared with the investors.

b) Another underlying risk of sukuk is the asset risk. There is the risk of losing the assets in some cases. The risk of loss of assets is at a minimum in the case of ijarah assets of land parcels. However, in the case of equipment and vehicle the risk of loss is relatively high. Another issue in relation to the asset risk is the requirement to maintain the structure of the assets. Suitable maintenance of assets will make sure that there are sufficient returns to investors. Tariq

(2004) pointed out that in line with Shari'ah principles, SPV bill needs to be followed to maintain the assets. In practice, however, this responsibility is transferred to the lessee based on a service agency agreement.

Risks of sukuk are also related to underlying assets, sukuk are backed with some tangible, identifiable assets. These assets are also exposed to different risks (Haral, 2010). "The degree of risk of loss depends upon the type and mode of financing being used. For instance, in ijarah sukuk, this risk is minimized because the returns and redemption amount is not based on the performance of the asset rather it is undertaken by the borrower" (Mehmood, 2010). But, in other types of sukuk and other equipment in large scale construction areas as underlying asset. This risk can be significant. Another associated risk is with the maintenance of asset. If assets are properly maintained, then the return to the certificate holders will definitely increase.

c) Profit or return payment risk "This is another important factor which needs to be understood that sukuk holders might not receive anything as the return during the maturity period of sukuk" (Haral, 2010). For instance, in case of asset backed sukuk, whose returns or profit is totally based on the performance of the asset, there is no guarantee of return. "If assets perform well then returns are well, if bad then returns are also bad and might be nothing at all" (Mehmood, 2010).

d) Maturity risk means that the predetermined fixed return may lead to some risk for the sukuk holders regarding his financial planning. This may be the special

case for big investments (Cheema, 2010; Hashmi, 2010). Risk sukuk structure that is based upon face value realization is equity based. The value and performance of the underlying assets or service are represented by the face value of the certificate (Ullah, 2010; Kokab, 2010). When the value goes up until the period of maturity the sukuk holders will receive even more than the face value at maturity date. Otherwise, investors might not receive the full amount or even nothing. For instance, if the asset has no value at maturity the certificate holders will also not receive anything. If there is a great risk and there is no guarantee regarding the redemption of the face value of the sukuk certificate at maturity (Haral, 2010; Mehmood, 2010).

Another party termed as SPV issues for third party risk sukuk. Another party utilizes it. So, there is an intermediary between fund providers or sukuk holders and fund or asset users where SPV acts. For instance, payment of profits and final face value is received by SPV. The sukuk holders have to return it to them. Some fees are also charged regarding his work as an agent from the sukuk holders. Sukuk holders and asset users are not subject to direct link. There is dispute and misunderstanding between the parties (Haral, 2010). So, the rights of sukuk holders utilize it. They create complexities regarding payment settlement towards the sukuk holders (Kokab, 2010; Cheema, 2010; Haral, 2010).

e) On the word of Quqa (2008) state that currency risk occurs from inauspicious exchange rate fluctuation will react on foreign exchange position where there is the diversity between unit of currency that the sukuk pools are de-nominated

and the currency of de-nomination which the sukuk funds which are accumulated, sukuk investors are exposed to the exchange rate. Further, as stated by Quqa (2008), the Islamic development bank (IDB) sukuk was de-nominated in Islamic Dinar (ID) which is equal to one special drawing right (SDR) of the IMF that is weight – composed of 45% in US Dollar , 29% in Euro, 15% in Japanese Yen and 11% in Sterling Pound. Here, the sukuk certificates are de-nominated in US$. As a consequence, there is currency variance; there would have been currency loss for the issue. Fortunately, in the aftermath of the global finance crisis, the value of dollar depreciated surprisingly, this result in profit.

Report of Villamr sukuk company limited (2008) stated that on preliminary offering, in the case of villamar, sukuk issued in Bahrain, the project is in Bahraini Dinar whereas sukuk certificate are denominated and payable in US Dollar. Even though the Bahraini Dinar is pegged at a fixed exchange rate to the US Dollar, the project exposed to possible blow of any modification or closing down of this foreign exchange pegged.

As mentioned by offering circular Petronas global sukuk Ltd (2008), most Petronas revenues and cost are de-nominated in US Dollars, though a part of the income of the expenditure are de-nominated in Ringgit consequently. Variance in the US Dollar to Ringgit exchange rate could have an effect on Petronas operation and financial state. In addition, as a worldwide company exchanged in business in over 30 countries, Petronas is also revealed to changes the value of the other currencies. When investor buys sukuk in

foreign currencies, they face currency risk (Mehmood, 2010). For instance, an investor in USA buy sukuk issued by the Pakistani government or in UAE, investor is subject to risk due to the fluctuations in the exchange rate of Pakistani Rupee (Rs.) or UAE Dirham at the time of converting returns in his home currency USD (Haral, 2010).

f) Operational risk arises due to operational failures. These notions have been highlighted by several authors. Simplilearn (2013) reported that operational risk arises due to operational failures such as mismanagement or technical failures. Operational risk can be classified into legal risk and Shari'ah compliance risk (James, William and Michael, 2012).

As far as Shari'ah compliance risk is concerned, Shari'ah scholars' opinions on various issues with regard to sukuk issuance varies between different jurisdictions. At the time when the Islamic bond market is developing and transforming day by day Shari'ah compliance risk was inevitable. In reality, a Shari'ah board which approves a specific structure may not approve a similar structure. According to IDB trust certificate issuance programme (2005), this does not mean that the early pronouncement is declared non shari'ah compliance. Further, he suggested sukuk issuers maintain any change in Shari'ah opinion in the future would not have any effect on the validity of the pronouncement made in respect of any early trust certificate. Therefore, it is important to understand that the pronouncement for a specific issue will remain, in force, even after the change of opinion by the scholars on the same issue. In addition, the issuer under agreement should inform dealers of any

change. Further, scholars who have changed their opinion on certain issue involving sukuk issued earlier need to be very careful expressing their opinion.

On the other hand, al-Amine (2012) has pointed out that there is no assurance that a sukuk structure approved by one Shari'ah board will be approved by another board. Therefore, experts suggests that sukuk investors obtained their autonomous Shari'ah advice as to whether the certificate and contract documents made their individual standard of compliance since investors may be reluctant to invest in such transaction. The liquidity may be affected. This particular Shari'ah compliance risk can be mitigated only through greater harmonization of Shari'ah rules and principles.

Another type of Shari'ah related risk is that there is no assurance that the certificate and transaction document are enforced by court or judicial authority selected as the sole court for jurisdiction. Although the Shari'ah supervisory committee of the Shari'ah advisor for the particular sukuk has issued a pronouncement conforming that the sukuk are Shari'ah compliant, such a pronouncement is not binding on local court or juridical committee. As suggested in Saudi basic circular of industries corporation (SABIC) (2008) to avoid this risk, sukuk issuers qualify their statement in this regard that no person (including, without limitation, the issuer) makes any representation that the sukuk, the condition and any other sukuk document comply with Shari'ah principles, except for detail pronouncement the Shari'ah supervisory committee of the Shari'ah advisor.

As Hasan (2008) reports that another Shari'ah compliant risk would also be in the form whereby the sukuk assets lose value as results of the issuer breaching its fiduciary responsibility with respect to in accordance with Shari'ah. The breach could be willful or innocent. For example, if ijarah is generally higher than the istisna assets in the pool the sukuk act will be dissolved or at least will not be traded due to Shari'ah compliance. Howladar (2010) discussed that Shari'ah compliance risk can also be in the form of using non Shari'ah compliance argument as a defensive against fulfilling its obligation at the time of distress. This was highlighted in the investment dar (TID) blom bank case. The case highlighted the needs to be carefully understood and mitigated. Such risk has its implication in the sukuk and their ratings.

At times the Shari'ah risk could be multi-dimensional such as operational risk, fiduciary risk, reputational risk and legal risk. Karim (2009) points out that Shari'ah scholars and other stakeholders in the industry have paid attention towards these issues. Shari'ah pronouncement has exposed Institute of International Finance to such risk. The first reason for a Shari'ah pronouncement at a large portion of the sukuk available in the market today does not comply with the Shari'ah. Second, the high court in Malaysia pronounced that the certain Islamic home financing structure is not shari'ah compliant. Third, a recent Shari'ah pronouncement by an international body of jurists which ruled out that certain liquidity management products used by IIFs was not Shari'ah compliant. In all of these cases, the market was surprised and could not respond to the situation. Therefore, an effective Shari'ah governance system is needed.

Shari'ah compliance risk refers to sukuk structures that are governed by the Shari'ah and based on the principles of Islamic finance. Every sukuk structure should be in compliance with Shari'ah at all stages from issue to maturity. "Shari'ah monitors the whole context of each sukuk transaction" (Mehmood, 2010). Sukuk is a new and complex structure in the capital market that is not used to it. There is no knowledge with the traditional experts regarding the Shari'ah who is working with the traditional financial system since 300 years. So, they tried to drag the sukuk close to traditional bond, ignoring the unique features of Islamic finance and Shari'ah Law. "At the moment, corporations put profit as their first priority and don't care about the Shari'ah compliance" (Hashmi, 2010).

There are many other cases where Islamic scholars did not accept the validity of the sukuk as Shari'ah compliant product. There are different opinions among the scholars from different regions and even within a region. Shari'ah compliance risk is a big issue. It is still exposed due to difference of opinion among the Shari'ah scholars, secondly, no proper and authorised institute has been made globally an acceptable and adoptable "sukuk market is really exposed to this compliance issue" (Haral, 2010).

g) Liquidity risk: There is fast and dynamic changes taken place in the world from the perspective of liquidity risk. There are chances for investors who have the liberty to invest. In case, if they want to disinvest they can do disinvest whenever they wish. The key attractive feature of any successful

financial instrument is the liquidity as in the case of traditional bond. Sukuk are exposed to liquidity risk. Negligibility, well-structure and sufficient secondary market should be present for their trading (Razaq, 2010). For instance, countries such as Malaysia, UAE and Bahrain have the secondary market at the local level for sukuk trading. However, it is not in the case of the rest of the World (Ullah, 2010). Sukuks are traded on local markets. But, they do not solve their liquidity problem. At present, there are medium and long term sukuks mostly. A number of short terms sukuk in practice is very small. The major disadvantage of sukuk is there is no secondary market (Haral, 2010).

There are problems with respect to liquidity. All these add to the liquidity problems. Thus, these sukuk certificates are invested by the investors who have to keep such sukuk certificates until their time of maturity. In occasions like illiquidisation, sukuk cannot be liquidized. They have risk regarding its liquidity. There are worries for investors buying securities. Because they feel it is difficult to sell securities. In Islamic financial institutions, there is liquidity problem due to a number of reasons. Reasons may be small number of participants and slow development of Islamic financial instruments. There is no Shari'ah acceptable inter-bank market. Absence of a liquid Islamic secondary market and no provision for lender of last resort facilities and different Shari'ah interpretation are additional reasons for this (Cheema, 2010).

h) Wilson (2007) states that credit risk refer to the probability that an asset or loan becomes irrecoverable due to default or delay in settlements. Under the Shari'ah principle, those facing real problem in meeting financial obligation should be treated with leniency, but does not mean that Islamic bank should be regarded as soft touch. There are major types of credit risk. Inability to make regular payments and failure to repay principal amount are some of the credit risks. Leniency towards debtor can be abused and it is often difficult to distinguish those who cannot meet their obligation through no fault of their own and unscrupulous defaulters who will not pay. Shari'ah compliant construct assume a degree of trust between the parties who should be governed by a higher moral authority.

Al-Amine (2012) notes that as a solution, Shari'ah board of most Islamic institutions have approved a financial penalty being imposed. In the case of default, provided that proceed are given to a designated charity, a just solution, especially in the case of unscrupulous defaulters where immoral behavior can be potentially cleansed though charity. An Islamic bank institution is also justified in levying additional charges to cover the cost associated with default. The principle of penalizing a defaulter who is capable of is generally accepted, but there is no need for compensating the creditor or the method of doing so is agreed upon.

Howladar (2006) noted that, rating prospective is one of the considerations taken by rating agency that is interest based late payment penalty that cannot be charged. Sukuk structure allow for delayed payment or redemption without

requiring it to compensate investors. Such fees are sometimes permissible if payable to charity or to alternatively some preset fixed amount may be accepted. This attempts to maintain the incentive for timely payment, although the loss of such income for the investor would be considered in the rating analysis if there was the potential for extended delays with no sukuk default or termination.

Sukuk certificates are valued according to the performance of the underlying asset only. All cash flows or profits generated by the asset are distributed to the sukuk holders according to their share and nature of sukuk. "Another important point is that in practice, most of the sukuk issued are not asset backed in a real sense" (Kokab, 2010). For instance, in case of one of the largest sukuk named Ijarah the asset's performance remains no more a matter of concern for the sukuk holders. Borrower undertakes to repurchase the asset at maturity which is equal to the face value of sukuk outstanding. Sukuk holders are interested in coupon payments and the final proceeds at maturity. This results in credit risk. The borrower may default either in coupon or face value of sukuk at maturity (Haral, 2010; Mehmood, 2010; Razaq, 2010). "If sukuk are purely designed in compliance of Shari'ah there will be no credit risk because they are totally backed by asset" (Cheema, 2010).

As seen by Baeshen **(**2009), credit risk and default in sukuk refers to that default is triggered when one or more events, such as non-payment or insolvency take place. Therefore, when stand still or restructuring happens a default is triggered. Then, technically, the default has occurred. Unfortunately,

there has been pessimism by some to the extent of depicting some care of default at the end of the sukuk market, in particular, and Islamic Finance in general. Thus, Alexander (2009) observes that those defaults suggest that the reality is a young assets class that has grown rapidly in the unprecedented period of global economic boom since 2002. Agha and Grainger (2009) pointed out that blaming Islamic finance for sukuk default is both simplistic and misinformed.

Cooper (2009) came with another baseless criticism. It was read the enormous bad surrounding Nakheel's $3.5 bn.sukuk repayment. This month has exposed these debt instrument nothing more than unsecured commercial bond with no recourse to underline assets in the event of defaults. Nakheel actually repaid its sukuk in full and on time thanks to the last minutes intervention of Abu Dhabi government, which dropped the Dubai government a $ 10 bn lifeline. Actually, it was a $ 10 bn. conventional bond with the interest of 4% payable over 5 years. No doubt, sukuk will continue as a part of Islamic finance but their role in large scale financing may now be sharply reduced. Legal ownership and documentation are one of the most critical topics in the market. Following few default cases is the right of sukuk holders in the event of non-payment or default. There are still gray areas regarding the claim on an underlined assets, the position in the lineup of creditors and how will sukuk certificate holder be treated when companies go to general default.

i) Legal risk in sukuk as reported by Al-Amine (2012) explains that the experience in sukuk issuance has owned that there are a number of legal

challenges that the sukuk market are facing. The enforcement and jurisdiction law, the non-recognition of precedent in many countries, the non-existence of trust law despite its crucial importance in sukuk issuance, the legislative and regulatory infrastructure, the taxation law and property ownership law. Legal risk in sukuk is also denoted by regulatory risk.

There is a need for everything that has to be regulated well in order to get benefit from it. In the case of sukuk and its market as well, this is true. There are unregulated market results that are based upon bad at the end (Mehmood, 2010; Razaq, 2010). There is no unregularisation to the full extent. There is no standardized and documented transaction structure of sukuk. The one which has been developed so far is not uniformly accepted and adopted around the world (Haral, 2010). Kokab (2010) stated that every region or even within the same region the sukuk has its own structure for each and every issue.

As considered in default, there are sukuk cases which are prosecuted generally under the English Law. There is no violation in the Shari'ah (Islamic law). There are no well-regularized and documented laws with respect to sukuk transactions in case of default in Shari'ah law. There is about whether the sukuk holders will be treated like traditional bond holders. Under the British law, it is governed by the contract that should be governed by the law that is chosen by the parties. Any other non-national law, such as Shari'ah law has no place for this. There is no a part of national law of almost all the countries as far as Shari'ah law is concerned. So, it is very unrealistic to execute the contract under that law. There are no sukuk that have to be secured and

they are backed by assets. This is why investors are worried whether they have to recourse to this asset or not.

Al-Amine (2012), considering that, having the assets in multiple jurisdictions which apply different legal systems make the thing even more complicated. It is worth noting also that as the majority of sukuk issuances in the region are partly governed by English law, leaving a question as to how those cases can be handled in a scenario where English law contradicts the provisions of Islamic Shari'ah. It is also important note, in terms of Shari'ah, each jurisdiction approaches the Shari'ah elements of financial structures in different ways as per to the requirements of its own law. Therefore, stakeholders must not assume that a single interpretation of the Shari'ah principles shall be applied universally just because the structure has been determined to be Shari'ah compliant.

As observed by Richter and Y-Sing (2009), there are limitations in the Gulf in enforcing precedents of English judgements. In addition to the issuer in several sukuk often special purpose company registered in certain places around the world for legal or tax purposes. Al-Amine (2012) raises some questions to whether the sukuk are safer than bond in his opinion. There is no simple answer to that. The theoretical answer to that will be if the sukuk is structured as unse-cured or asset based as some sukuk in the market, the sukuk are not necessarily riskier than conventional bonds. Al-Amine (2012) stated that if one looks at the essence of sukuk that they shall be asset backed. One can argue that they should be similar to securitization such that the investors should assume the performance risk of the assets as opposed to just looking on the book value on the record of the obligor. In which case, they are safer to some extent. Baeshen (2009) stated that it becomes riskier when structuring sukuk is a fairly new initiative and have limited judicial and legal precedents to guide us as to how

they are treated, and that most of the assets backed sukuk issues in the GCC region. Particularly, they are generally real estate based. One may argue that sukuk as structured today are riskier as they are just reflecting the sector risks.

In accordance with Adel-Khaleq (2004), tax in the sukuk points out that the tax issues are important for the issuance of sukuk or any Shari'ah compliant investment vehicle. Tax advice will be required to understand the taxation treatment of both the establishment and operation of an investment vehicle. At the establishment, the promoters of a structure that will initially involve multiple asset transfers. As it is the case with the sukuk structures, will require tax advice to determine the taxation treatment of those transfers. Tax advice is also necessary to confirm of any favorable tax treatment of a particular jurisdiction to all aspects of the business and operation of the investment. Thani (2007) stated that the tax systems in the world developed far before the emergence of Islamic financial institutions. This in a way indirectly is penalizing Islamic finance instruments. This will in turn unfairly discourage the consumers of Islamic financial products who simply wish to meet their financial needs while complying with certain ethical principles that they subscribe to.

Ram Rating Agency (2009) reports on Malaysian sukuk taxation. In Malaysia, it has taken the lead role in addressing the tax issues in sukuk. Section 2 (7) of the International Trade Administration (ITA) states that the treatment of profits will be similar to that of interest for tax purposes, where the profits are in relation to Islamic finance transactions. Therefore, Islamic finance is given the same treatment as conventional financing.

According to Al-Amine (2012), it is clear that different jurisdictions have taken steps to make the necessary legal amendments to boost their competitiveness in attracting

Islamic finance products. Ibrahim (2009) pointed out that the sukuk are structured using the concepts of trust and beneficial interest under English law. These are not recognized in Dubai. A security agent was used as a domestic agent for creditors to enforce the mortgages if recourse to the assets is required in the event of a default. This legal model has no precedent. Therefore, there is great uncertainty about the ability to enforce.

Evans (2007) viewed that lack of cooperation between Shari'ah scholars and lawyers in the interpretation sukuk document have negative impact in the industry. Some lawyers held Shari'ah scholars are the main obstacle for Islamic finance lawyers, because of their inconsistent judgments. However, this statement not widely accepted. Sukuk market has classified risk. Figure 3.1 shows that risk classification of international sukuk are asset backed 65%, asset based 22%, hybrid 10% and project backed 3% in 2012.

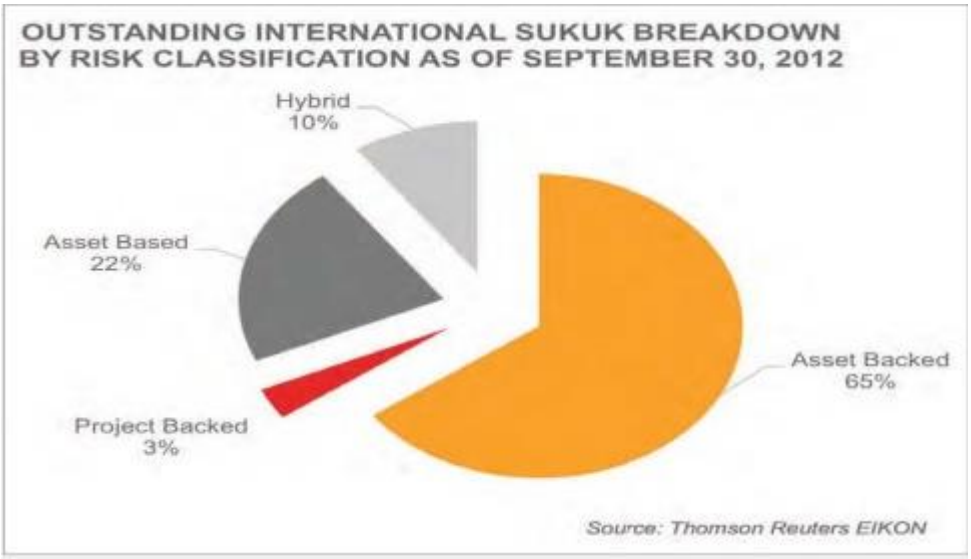

Figure 3.1
International Sukuk Breakdown by Risk Classification
(Source: Adopted from Thomson Reuters EIKON)

Figure 3.1 depicts about the international sukuk breakdown by risk classification.Asset back sukuk are more secure for investors because in the case of

default, investors have climes on both the obligor and the underline assets. 68% of EURO bonds are mainly assets backed sukuk, asset based sukuk make up 22%. Thomson Reuters Zawya survey (2013) shows 79% of investors prefer asset backed sukuk while 21% prefer asset based sukuk. As for lead arrangers, 52% prefer asset backed sukuk where as 48% prefer asset based sukuk.

As a summary table 3.1 presents the risk factors that are previously found in the sukuk market.

Table 3.1
A Summary for Risk Factors of Previous Studies in the Sukuk Market

Authors	**Risks factor in the Sukuk Market**
Haral (2010)	Risks involved in the sukuk market
Dusuki and Mokhtar (2010)	
Nanaeva (2010)	
Firoozye, (2012)	
Haider and Azhar (2010)	
Al-Amine (2012)	
Haral(2010),	Return rate risk, market risk, assets risks, currency risk, Shari'ah compliance risk, legal risk, structure risk. regulatory risk , liquidity risk, credit risk,
Hashmi (2010)	
Razaq (2010)	
Cheema (2010)	
Razaq, (2010)	
Mehmood (2010)	
Al-Amine (2012)	Country risks, assets risks, credit risks, counterpart risks, operational risks, market risks, legal risks, taxation risks, liquidity risks. interest rate risks, regulatory risk
Nanaeva (2010)	Assets risk, structure risks, regulatory risks, legal risk
Firoozye (2012).	
Alaswsat (2008)	
Khan (2012)	

Table: 3.1 (Continued)	
Baeshen (2009)	Sector risks ,credit risk, default risk, legal risk
Alsayyed (2010)	Liquidity risks, equity risks, foreign exchange risks, profit risks, credit risks, market risks
Tariq and Dar (2007).	
Tariq (2004)	Interest rate risks, currency risk, Shari'ah principals risk
Omer (2008).	Foreign exchange risks
Quqa (2008)	
The Global Research (2008)	Market risk, interest rate risk, foreign exchange rate risk, equity price risk , commodity risk,
Al-Amine (2012)	Market risk
Mehmood (2010)	Regulatory risk, legal risk, taxation risk, Shari'ah compliant risk
Razaq (2010)	
Ullah, (2010	Liquidity risks
Kokab, (2010)	Shari'ah compliance risks, credit risks
Khan, (2012);	Credit risks, default risk, insolvency risk
Ayman and Todd (2008),	
Kokab, (2010)	
Cheema, (2010)	
Haral,(2010)	
Wilson (2007)	
Howladar (2006)	
Alexander (2009)	
Agha and Grainger (2009)	
Cooper (2009)	
Richter and Sing (2009)	
Razaq,(2010)	Shari'ah compliance risks
Cheema,(2010)	
Hasan (2008)	
Karim (2009)	
Mehmood, (2010)	
Razaq,(2010)	
Hasmi, (2010)	

Table: 3.1 (Continued)	
Cheema, (2010)	Return payment risk
Hashmi, (2010)	
Ullah, (2010)	
Kokab, (2010)	
Haral, (2010)	
Mehmood, (2010)	
Cosgrave (2009)	
Wilson (2007)	
Karim (2009)	
Richter and Y-Sing (2009)	Legal risk
Baeshen (2009)	
Adel-Khaleq (2004)	
Thani (2007)	
Amin (2007)	
Ibrahim (2009)	

Source: Secondary data

3.4 Relationships between Risk and Return of Bond and Sukuk

The main focus of this study is to know about the relationship between different types of risks and return this section outlined about the relationship between different types of risks and the return. On this basis, clear demarcation is based on the risk- return relationship between conventional bond and the sukuk. Similarly, this section outlines about the impact of each type of risk not only on conventional bond but also on sukuks.

At the inception, the following section outlines about risk, return relationships from the review of literature. For the first instance, review outlines about the interest rate

risk and return. Interest rate risk is inevitable for the study. Studies stated the relationship between risk and return. Fathi, Zarei and Esfahani (2012) studied about studying the role of financial risk on return of the bond. Researchers pointed out that risk has an important role in all countries, and its return of bond is valuable for sukuk market to the extent that the countries apply risk return relationship toward customer orientation in order to gain stockholders' confidence. In this research, three instruments of risk return relationship are represented by means of financial ratios consisting of interest rate risk, capital risk and risk of natural hedging. So, the basic problem in this research is the impact of risk return relationship on stockholders' wealth. Stockholders' wealth is measured by return on bond. This study had three hypotheses, the major one of which is that there is a significant correlation between risk and return. Results showed that interest rate risk and diversification risk have significant correlation with return, but there is no significant correlation between credit risk and return.

Inflation risk has links with rate of return. Studies proved the relationship between risk and rate of return. Aamer (1994) studied about risk and return relationship. This study investigates the empirical relation between inflation and bond return in ten industrialized countries, with a focus on the implications for links between inflation and the macro economy. The stock return decomposition of Campbell and Shiller (1998) is used to determine the extent to which the negative contemporaneous bond return associated with, associated with a positive inflation surprise is due to (a) lower future real dividends and (b) higher future required real equity returns. The evidences favor corporate tax- related theories (e.g. Feldstein, 1980). As per theories, an increase in inflation to raise the firms' effective cost of capital relative to the return

earned by investors in the firm. Tobin (1958) found that the inflation risk has relationship return. However, the similar results have been confirmed by the countries such as the United States and the United Kingdom.

Fama and French (1989) studied about business conditions, i.e. inflation risk and expected returns of stocks and bonds. A study was conducted in inflation risk and return of common stocks and long-term bonds that has a clear business-cycle pattern. It was found that inflation risk and expected returns are related to each other in longer-term aspects of business conditions. It was concluded that the variation with respect to inflation risk and return on low-grade bonds than in high-grade bonds.

Campbell (1987) studied about the inflation risk and stock returns. This study was conducted during the period of monthly U.S. data from 1959–1979 and 1979–1983. Study clarified about the state of the term structure of inflation risk and excess stock returns, as well as excess returns on bills and bonds. This study examined some simple asset pricing models. It was found that, in 1959–1979, the data strongly rejected a single-latent-variable specification of predictable inflation risk and excess returns. However, there is the relationship between inflation risk and return based on conditional mean and conditional variance.

Banz (1981) studied about the relationship between inflation risk, return and the market value of bonds. This study examined the empirical relationship between inflation, return and the total market value of NYSE bonds. It is found that smaller firms have had higher risk and return relationships, on average, than larger firms. It was concluded that this ‘size effect’ between inflation risk and return has been in existence for at least forty years.

Previous literatures denoted about the relationship between currency exchange risk and rate of return. Shetty and Manley (1998) studied about analysis of the currency risk impact on returns. This study examined the currency risk impact on return outcomes, market correlations, and the relationship between volatility and correlation from the perspective of non-dollar based investments, in addition to dollar-based investments commonly used in the past studies. The study used the data for 1988 - 97 period. This study found a substantial difference in the size and the direction of the currency risk impact as the currency base of the investment is changed.

Aggarwal (1981) studied about currency risk and return. It was trying to find a significant relationship between an appreciating U.S. dollar and U.S. bond prices. Contrarily, Soenan and Henniga (1988) found the opposite relationship between currency risk and return. The study proved the negative relationship between the impact of currency risk movement and the return outcome.

According to Solnik and Noetzlin (1982), study examines the impact of exchange risk rate movement from the perspective of bond investors with non-dollar based investments. It was examined whether the foreign investment environment faced by these investors is the same as the one faced by the U.S. investors. Study selected six major capital markets (U.S., Canada, Germany, United Kingdom, Japan, and Switzerland) and consider an investor from each of these nations investing in the stock markets of the other five countries. It was found that the exchange risk factor adds 15% to the total return averaged over the1970-80 period on a dollar-based investment. It is important to note that, in bond market investments, there is a positive benefit of low correlation across markets that can be outweighed by the negative impact of

changes in the exchange risk rates, and vice versa. It was revealed that the impact of exchange risk rate changes and return outcome of a bond investment is also dependent on the base currency risk of the bond investment portfolio. This finding was similar to the past studies of international portfolio investment invariably that focus on these issues from the perspective of a U.S. investor (i.e., a dollar-based investment).

Munro (2014) studied about foreign exchange rate risk and expected returns. According to theory, higher expected foreign exchange risk decreases expected return. This study exploits the relationship to jointly identify the foreign exchange risk and return. This study modeled risk and return jointly over a 10-year horizon in any of the eight advanced country USD currency pairs. It was revealed that the currency risk are correlated with the return in bond markets. It was concluded that innovations in the currency risk and return are correlated with one another.

Chen et al. (2014) studied about foreign exchange risk and expected future returns in bond markets of New Zealand. It was expected that foreign exchange risk and return to the bond market. The standard test asked whether foreign exchange rate changes have linked with the return. This study tried to model foreign exchange risk and expected returns together. It was found that there is a correlation between foreign currency risk and return. The findings are witnessed by studies done by Engel and West (2010) who employ asset price models for assuring the relationship between the foreign exchange risk and return in the bond market. Engel and West (2010) found the relationship between foreign exchange risk and return.

Stalstedt (2006) stated that exchange rate risk and return income from a portfolio investors' point of view. The purpose of this study is to analyze how a volatile exchange rate risk affects return of a portfolio invested in Sweden, when the investor is located in Japan, United Kingdom or the USA. To analyze the effect of exchange rate risk and return, it was focused on a portfolio consisting of Swedish stock markets from the Stockholm Stock Exchange (SSE). The study hypothesized the exchange rate risk and return to a hypothetical Swedish investor. Then, the effects the exchange rate risk on the return were tested for a US investor, UK investor and a Japanese investor who invested in the same portfolio. Data were collected from the historical period of 2005. The empirical work showed that, for the international investors, the exchange rate risk was increased with between 1.95% – 410.52% in relation to the return on the bond market.

Mueller, Stathopoulos, Vedolin (2014) studied about international currency risk and return. This study focuses on international currency risk and returns. Researchers use cross-sectional data on spot international currency risk and return in order to construct a correlation matrix. Study constructs international currency risk and return relationship. Studies found that there is a correlation between international currency risk and return. It was also found that there is an excess return of 4% due to the international currency risk between 1999 and 2011.

Credit risk has been related to rate of return. Previous empirical evidences proved this idea or notion. Avramov et al. (2011) studied about credit risk and stock returns. The study argued that firms with low credit risk, realize higher returns than those firms with high credit risk. This study shows that the negative relation between credit risk

and returns is statistically and economically significant for credit risk and bond returns. For few periods, low quality firms experience higher credit risk due to substantial deterioration in their operating and financial performance. Such firms sell their bonds to institutional investors at considerably reduced prices. It was revealed that an average returns does not differ across credit risk groups in periods of stable or improving credit conditions.

Recent literature evidences tend the relationship between credit risk and return. Dichev (1998) and Campbell, Hilscher and Szilagyi (2008) examined the credit risk effect and bond returns during credit cycles. This analysis was based on a comprehensive sample of 3,578 NYSE, AMEX, and NASDAQ firms rated by S & P over the July 1985-December 2003 period. Study first showed that the return differential between the highest and lowest rated bond decile is 1.16% (7.60%) over a one month (year) period after the portfolio formation date. It was confirmed that the negative relation between credit risk and returns. Finding of this study is similar to the findings of Fama and MacBeth (1973) that was a cross-sectional regression of monthly individual returns on credit risk. Moreover, Study uses the CAPM. Sharpe (1964); and Lintner (1965); Fama and French (1993); model of Daniel et al.(1997) demonstrated that there is a negative relation between credit risk and returns is robust to adjustments for risk as well as for firm characteristics. It was found that the negative relation between credit risk and average returns crucially depends on credit cycles. It is the returns on low rated bonds that drive the negative relation between credit risk and returns. In contrast, the credit risk effect is statistically and economically insignificant during periods of stable or improving credit conditions. Moreover, credit risk is statistically and economically insignificant in monthly cross-

sectional regressions during non-downgrade periods. It was demonstrated that credit risk is negatively related to the bond returns.

In 2001, the researchers studied about the relationship between systematic risk, credit risk and return. Berrada, Gibson, and Mougeot (2001) studied about the relationship between credit risk and return in the Nordic market. This study aimed at investigating the relationship between systematic risk, credit risk and return. This study sets the hypothesis as to establish a relationship between systematic, credit risk and return. This study considered an actual sample that consisted of the 58 credit rated companies on the Nordic stock market. In order to investigate the relationship between these variables, a regression analysis was performed along with one sample T-test using the software SPSS. The result revealed a moderate relationship between systematic risk and return. Likewise, there was no relationship between credit risk and return.

Schwendiman and Pinches (1975) studied about an analysis of alternative measures of credit risk. While, Impson, Karafiath and Glascock (1992) studied about credit risk and return to the bond market. Studies showed that the actual relationship between credit risk and return at one point in time. Likewise, Schwendiman and Pinches conducted this kind of study on the American market in 1975. The findings of this study showed an inverse relationship between these two variables, i.e. a higher credit risk results in lower returns. The results within this area have indicated that credit risk downgrades are associated with higher return. These results are highlighted by Impson, Karafiath and Glascock (1992) who researched almost 300 upgrades and 400 downgrades. The study concluded that there is no visible effect with respect to credit risk and return.

Bheenick (2012) studied about what explains the credit risk-return relationship. The objective of this study is to assess the puzzling credit risk-return relationship of bond. In particular, It was compared bonds with high credit risk and the bonds with low credit risk firms. This was measured using a sample of the most developed nations in Asia Pacific for a period from January 1990 to June 2012. Study results indicated that the credit risk-return relationship exists in both Japan and Australia. However, it seems that the credit risk, return relationship is explained by the downgrade announcements in the market. Thus, study concludes that downgrade announcements of firm have a significant impact on the cross section of returns. There is a known credit risk relationship, which highlights a negative relationship between credit risk and bond market returns.

Oretha (2012) studied about the relationship between credit risk and financial return performance of bond market in Liberia. This research objective was formulated in order to gain a better understanding of credit risk and its relationship with financial return performance. This study undertook both quantitative and qualitative research designs. It was a survey method is used. The data were collected by cross-sectional survey method. The conclusion of this study revealed a positive relationship between the credit risk and financial return performance.

Friewald, Wagner and Zechner (2011) studied about the credit risk and returns. The study analyzed whether distress risk is priced in returns by exploring the joint cross-section of credit default swaps (CDS) and bonds for US from 2001 to 2010. Researchers extract credit risk from the term structure of CDS spreads using a single-factor model which was similar as study done by Cochrane and Piazzesi (2005). It

was consistent with predictions from structural models. Empirical results reveal a strong link between credit risk and return in bond markets.

Studies argued that there is rapport between maturity risk, interest rate risk and rate of return**.** SEC (2014) study reported that the effect of maturity risk, interest rate risk and return. Maturity risk and interest rate risk affect returns. The longer the bond's maturity, the greater the risk that the bond's value could be impacted by changing interest rates prior to maturity, which may have a negative effect on the return of the bond. Therefore, it was concluded that bonds with a longer maturity risk generally have a higher interest rate risk than similar bonds with shorter maturity risk.

Studies have been conducted to prove the correlation between Shari'ah compliance risk and rate of return. Natarajan and Dharani (2012) studied about Shari'ah compliance risk and return in stocks in India. This work empirically examined the Sharia compliance risk and return behavior of the selected Shari'ah Compliant Stocks and benchmark indices. Data were collected during the period from 2nd January 2007 to 29th July 2011 with the help of the selected Shariah Compliant stocks, the Nifty Shariah index, Nifty index, BSE Sensex index. The study analyzed the data on the basis of the t-test, CAPM to estimate beta, and correlation Matrix. The study reveals that the average returns of the Shariah Compliant Stocks and benchmark indices were correlated with returns. In the same line, average return of the Shari'ah index and Common index in India during the study period were also highly resembled each other. Hence, the study reveals that the Shariah Compliant risk has a connection or relationship with return.

The studies conducted by Abdullah and Bacha (2001) examined the impact of Shari'ah compliance risk and return for the trading volume of the Shariah stocks in Malaysia. Study employed event study methodology for daily closing prices and trading volume of the Shariah stocks during 1997 to 1999. The study revealed that the Shariah compliance risk has a relationship with the returns for trading volume of the Shariah stocks. It was found that exclusion of Shari'ah compliance risk the stocks reduced the returns for trading volume of the Shari'ah stocks in the Malaysia.

Ahamad and Ibrahim (2002) compared the Shari'ah compliance risk and return performance of Kuala Lumpur. Data were collected from Shari'ah Index (KLSI) with Kuala Lumpur Composite index (KLCI) during the period 1999 to 2002. The sample period of the study is divided into growing period, decline period and overall period. Study has employed relative return technique, Standard deviation, risk adjusted performance measurement and two sample t - test to measure the performance of both indices. The study found that KLSI underperforms the relationship between Shariah compliance risk and return during overall period and decline period but there is an over-performance in the relationship between Shariah compliance risk and return during the growing period. Finally, it was concluded that there is no significant difference in Shariah compliance risk and return performance of both indices during three sample period.

Hakim and Rashidian (2004) investigated the risk and return of Dow Jones Islamic Stock Market Indices (DJIM) from 1999 to 2002. The study also examined the long run and short run risk and return relationship existing among the variables using the

unit root test, co-integration and causality test. The study found that there is a risk and return relationship in T bill returns, Islamic index returns and Wilshire 5000 returns.

Hakim and Rashidian (2004) analyzed the risk and return of the Dow Jones Islamic World Index, Dow Jones World index and Dow Jones Sustainability (DJS) World index by using the weekly closing value of the indices and LIBOR. Data were collected during the period of January 5, 2000 to August 30, 2004. The study employed CAPM for the analysis. The results of the study reveals that the most popular index is market competitive, but has under performed in the association between the risk and return. However, the association between the risk and return was morally restricted except non-Islamic index. This study found that the three months the risk and return relationship in treasury bill returns dominate both the Islamic Index and the Wilshire 5000 stock market index. It was concluded that return and risk relationship of the Islamic index is less than the Wilshire 5000.

Hussein (2004) evaluated the return and risk related performance of ethical investment with their unscreened benchmarks. The study empirically tested whether the returns of FTSE global islamic index are significantly different from their index counterpart (FTSE All- World Index). The sample period has been divided into two sub-periods, bull period (July 1996 – March 2000) and bear period (April 2000 - August 2003). Both indices were performed on the return and risk relationship in a similar manner during the entire sample period. On the other hand, the Islamic index yields statistically significant positive abnormal return and risk relationship in the bull market period, whereas it under performed return and risk relationship in the bear market period. In general, the results show that the application of return and risk

relationship in ethical screening does not have an adverse effect on the FTSE Global Islamic Index performance.

Hussein (2005) made an effort to test return and risk relationship of monthly returns of Financial Time Stock Exchange (FTSE) Global Islamic index and Dow Jone Islamic Market Index that are significantly different from their common index for the period January 1996 to December 2004. The sample period is divided into a bull market and bear market. The study employs Capital asset pricing model, Risk adjusted performance measurement, t–test, Wilcoxon Signed test, buy and hold return method and cumulative return method for examining long run and short run return and risk relationship between indices. During the short run period, Islamic indices statistically over perform in return and risk relationship during the whole period and second bull market period. In the long run, Islamic indices over performed in return and risk relationship during the entire period and second bull market period. Finally, the study found that there is a similar return and risk related performance between indices.

Hussein and Omran (2005) examined the impact of return and risk relationship for ethical screening on the performance of the Dow- Jones Islamic indexes during December 1995 to June 2003 by using monthly closing value of the DJIWI and its 13 sub-indexes. The sample period is divided into two sub periods, January 1996-March 2000 and April 2000-July 2003, in order to track the behavior of Islamic indexes under the bull and bear market conditions. By employing CAPM, Sharpe ratio, reynor ratio, the study found that Islamic indexes provide positive abnormal return and risk relationship over the entire period and the bull market period, but they

underperformed in return and risk relationship for their index counterparts over the bear market period.

Ahmad (2005) made an attempt to examine the return and risk related among the daily closing price of the Bursa Malaysia Shariah index, EMAS index and the daily Malaysian three months T-bills rate during the period April 1999 to December 2004 in Malaysia. The study employed the unit root test, Johansen- Juselius co-integration test, Granger Causality test and Vector Error Correction Model (VECM) to find the return and risk relationship among the variables. The results of the study revealed that the Bursa Malaysia Shariah index, EMAS index and three months T-bills share a long run return and risk relationship. In the short run, only changes in EMAS index tent to raise the value of BMSI and T-bills do not significantly affect return and risk relationship in both indices in Malaysia.

Albaity and Ahamad (2008) investigated the risk and return performance and the relationship between KLSI and KLCE over the period of April 1999 to December 2005 in Malaysia. The study applied the risk and return performance measurement, causality and Johansen co integration test. They found that there is an insignificant return difference and long run bidirectional risk and return relationship between both indices.

Sadeghi (2008) investigated the impact of the introduction of Bursa Malaysia Islamic Index on the risk and return financial performance and liquidity of the screening securities involved in the Islamic index in Malaysia. The study employed event study methodology to estimate mean cumulative returns of the Shariah compliant stocks in

the days surrounding the event and also investigate the changes in liquidity using trade volume and bid ask spread surrounding the event days as liquidity proxies. The study found that the introduction of the Shariah index has a positive and strong impact on the risk and return financial performance of the Shariah compliant stocks.

Dharani and Natarajan (2011a) compared the risk and return of the S&P CNX Nifty Shari'ah index and S & P CNX Nifty index at day wise, mothwise and quarter wise during 2nd January 2007 to 31st December 2010. The study found that there is a significance risk- return difference between both indices during third quarter in India. Finally, the study found that Ramalan effect prevailed in the Shariah index during the third quarter of the study period in relation to risk and return aspects.

Dharani and Natarajan (2011b) empirically examined the risk and return of the Nifty Shariah index and Nifty index during the period 2nd January 2007 to 31st December 2010. The sample period is further divided into the bull market period and bear market period based on the movement of the both the indices during the study period. This study analyzed the risk and return performance of the Islamic index and common index and to test whether any significant difference between risk and return in both indices in India. Study employed risk adjusted measurement such as Sharpe index, Treynor Index and Jensen alpha. The t- test is used to test the mean risk-return difference between both indices. The study concluded that Nifty Shariah and Nifty indices in India are performing good in risk- return in a similar manner.

Chordia, Sarkar and Subrahmanyam (2005) studied about an empirical analysis of liquidity risk and return in Stock and Bond Market. This study explored liquidity risk

and return in cross-market liquidity dynamics by estimating a vector autoregressive model for liquidity (bid-ask spread and depth, liquidity risk, returns, volatility, and order flow in the stock and Treasury bond markets). Studies found that liquidity risk and return in stock and bond market has a relationship and volatility between liquidity risk and return are significantly correlated. It is also found that liquidity risk and return of bonds have proven relationship and are common for knowing the factors driving liquidity risk and return in these markets.

Jong and Driessen (2012) examined about liquidity risk and return in Corporate Bond Markets. This study explored the role of liquidity risk in the pricing of corporate bonds. The study shows that liquidity risk has a rapport with return of corporate bond returns that have significant exposures to fluctuations in treasury bond liquidity and bond market liquidity. Further, this liquidity risk is a priced factor for the expected returns on corporate bonds, and the associated liquidity risk explains the return on the bond market as a puzzle. In terms of liquidity risk and expected returns, study found the very similar evidence for the liquidity risk and return relationship for corporate bonds for a sample of European corporate bond prices.

Estrella (2006) studied about consumer confidence, risk and return in predicting U.S. Recessions in the bond market. This study examined the confidence, risk and return out-of-sample performance of various financial variables as predictors of U.S. recessions. Series such as confidence risk, spreads, stock prices, monetary aggregates and return were evaluated individually and in comparison with other financial and nonfinancial indicators. The analysis focused on confidence risk and return out-of-sample performance from one to eight quarters ahead. Results showed that confidence risk and return of bond prices are useful with one- to three-quarter horizons.

Lemmon (2000) studied about the consumer confidence and asset prices. The study explored the time-series relationship between consumer confidence risk and return. The study estimated the components of consumer confidence risk and return related to economic fundamentals and investor sentiment. A study was conducted by controlling for the time variation of beta. The study used the time-series data over the last 25 years. Consumer confidence was measured by comparing the returns of small bonds and stocks with low institutional ownership. It was found that the consumer confidence risk has a rapport with return albeit, the rapport does not appear to forecast time-series variation in the value and momentum premiums.

Baker and Wurgler (2007) studied about consumer investor confidence sentiment risk in the bond market. Consumer confidence risk and return were approached using the "top down" approach to behavioral finance focuses on the measurement of reduced form, aggregate consumer confidence sentiment and its effects to bond and stock returns. The study was built on the two broader aspects such as consumer confidence sentiment and return so as to explain which bonds are likely to be most affected by consumer confidence sentiment. In particular, bonds of low consumer confidence sentiment have lower return. In other words, higher risk is caused by low consumer confidence.

Marston (1999) studied about the consumer confidence and the return on the bond market. The study used expectational date from financial analysts to estimate the consumer confidence and return for U.S. bond and stocks. The study found an average consumer confidence and risk relationship on long-term U.S. government bonds over the period of 1982-1998. The study also found that consumer confidence and return varies over time and that much of this variation can be explained by either the risk

return relationship for bond and stocks. It was concluded that risk and return are inversely related with one another.

This section outlined about the relationship between different types of risks and the return. This study clearly demarks the risk- return relationship between conventional bond and the sukuk. Further, this section outlined about how each type of risk has an impact on not only on conventional bond but also on sukuk. Following this section, the next section of this chapter is to be outlined about methods of measuring risk used by previous studies.

3.5 Methods of Measuring Risk used by Previous Studies

Various researchers have used different types of methodologies to determinants of risk and return performance in the bond market in the past. Some of these previous studies for measuring risks are presented here.

Sum (2012) studied about the determinants of U.S. Government Bond Risk Premia. This study constructs various models to explain the variability of risk and returns on U.S. government bonds with different maturities. In particular, this study specifies different sets of key determinants that jointly explain the variability of risk and returns on U.S. government bonds with 1-year, 2-year, 3-year, 5-year and 10-year maturities. For the 1-year maturity, S & P 500 dividend yields, maturity risk, change in 6-month certificate of deposit rate, change in the consumer price index, change in business confidence and excess return on the CRSP value-weighted index jointly explain up to 85.92% of excess return variability. For the 2-year maturity, maturity risk, change in 6-month certificate deposit rate, size risk factor, change in the consumer price index

and change in consumer confidence jointly explain 80.81% of the excess return variability. For the 3-year maturity, 80.59% of the excess return variability is accounted for by maturity risk, change in 6-month certificate of deposit rate, size risk factor, change in consumer confidence, change in the consumer price index, and return on U.S. dollar trade weighted index; the same factors for the 3-year maturity explain 82.55% of the excess return variability of the 5-year maturity.

Model of this study explained variability of risk and returns on U.S. government bonds with different maturities that are depicted below. Finally, maturity risk, change in 6-month certificate of deposit rate, size risk factor, moment factor, change in consumer price index and return on U.S. dollar trade weighted index explain 90.76% of the excess return variability of the 10-year bond. It is concluded that there is risk and return relationship in U.S. Government Bond Risk.

In this study, it was employed the time-variant Ordinary Least Squares (OLS)[1] regression to find the determinants of U.S. government bond risk and return. The model is employed to determine the excess return variability of the 3-year U.S. government note return index. The response variable is the difference between the monthly return on the 3-year U.S. government note return index and the monthly risk-free rate (return on the 1-month Treasury bill). The explanatory variables are maturity risk, change in 6-month certificate of deposit rate, size risk factor (SMB), change in consumer price index, change in consumer confidence and return on U.S. dollar trade weighted index.

$$R_{b3t}-R_{ft} = \alpha + \gamma_{1\Delta}TERM_t + \gamma_2\Delta CD_t + \gamma_3\Delta CPI_t + \gamma_4\Delta CC_t + \gamma_{5\Delta}SMB_t + \gamma_{6\Delta}DOL_t + \varepsilon_t$$

1.The unknown parameters are estimated using ordinary least squares (OLS) or linear least squaresin a linear regression model. The observed responses in the dataset and the responses predicted by the linear approximation are compared so as to minimize the sum of squared vertical distances.

In this model,

ΔTERM refers to maturity risk

ΔCD: Refers to monthly change in 6 month certificate of deposit rate

ΔCPI: Monthly change in consumer price index

ΔCC: Monthly change in US consumer confidence index

ΔSMB: Refers to monthly size risk factor

ΔDOL: Refer monthly return on US dollar trade weighted index

Gajjala (2006) studied about risk and return in the Indian corporate bond market. Government bond issues have traditionally dominated primary and secondary Indian debt markets. Corporate bonds account for less than a fifth of outstanding issues. This study is a pioneering effort to identify the determinants of risk premium in the Indian corporate bond market between 1998 and 2002. This study was modeled as denoted below.

RP = B0 + B1CR + B2Term + B3TS + B4TF + B5CPN + B6 RM + B7RED + B8P + e

where

RP : logarithm of risk premium

CR: credit rating (0 = AAA, successive lower ratings = 1 to 17)

Term :logarithm of term structure effect

TS : logarithm of trade size

TF : logarithm of trading frequency

CPN : logarithm of coupon rate

RM : logarithm of residual maturity

RED : redemption mode (1 = bullet redemption, 0 otherwise)

P : promoter status (1 = inexperienced, 0 otherwise)

Results of ordinary least square (OLS) multiple regression indicate that there is relationship between risk and return and concluded that factors influencing risk and return relationship differed for institutional and non-institutional trades.

Randeniya and Wijerathna (2012) studied the application of the Fama and French factor model for the Srilankan bond market to know the risk and return relationship. This study is conducted to identify the risk and return performance of the factors and to identify their predictability and relationship with the FF factor portfolios. The analysis period considered was January 2000 to December 2010. As the Sri Lankan bond market is an Emerging Market, there has been a vast change in the market over the past 10 years. The calculated factors were in turn analyzed using the information coefficient and descriptive statistics. The FF-model and CAPM-model were fitted using multivariate regression analysis and the residuals were analyzed to test the fit of the model. The analysis was conducted in two time phases, namely the period during the civil war in Sri Lanka (before May 2009) and the period after the end of the war. The results were back-tested using 60 month rolling windows to identify the consistency of the fit across time. Often multiple factors are used for modelling purposes such as size, value each of which captures a different characteristic of the market thereby improving the fit of the model. The FF model is defined as follows:

$$r_A = r_f + \beta_A (r_M - r_f) + S_A \, SMB + h_A \, HML + \alpha + e$$

Where,

r_A : Expected return on the asset A – Beta

r_f : Returns on Weighted Average Deposit Rate of Commercial Banks

r_M : Returns on the All Shares Price Index

S_A : Securities sensitivity to the size premium

SMB : Size premium

h_A : Securities sensitivity to the value premium

HML : Value premium

α : Intercept

e : Standard error

This research concludes that the cross sectional returns on the Srilankan bond market are explained by the FF-factors and it has a better fit when compared to the CAPM-model. There is a relationship between risk and return in Srilankan bond market. The study also shows that the FF theory of 'small-cap- high-value' bonds tend to outperform the market is true in the Sri Lankan context, and using this theory is possible to construct an Index Fund and trade it based on expectations by using the FF forecast. The FF has approximately 36% R-square on average, hence the addition of other factors would be a better fitting and more suitable model.

Fama and French (1992) identified that the CAPM model does not sufficiently explain the average risk and return relationship in the US market. Thus, the CAPM was further improved with the introduction of two additional factors. This three-factor model of Fama and French (1993) indicates that expected returns can be explained by market risk and returns, a size-factor and a book-to-market equity factor. Eraslana (2013) studied about the application of three-factor model for testing risk and return relationship. This study tests the validity of the Fama and French three-factor asset pricing model on the Istanbul stock Exchange (ISE). Monthly excess bond returns over the period from 2003 to 2010 are used in the analysis. Realized returns show that portfolios containing large firms have higher average excess returns than portfolios containing smaller sized firms.

Generally, portfolios containing low book-to-market ratio, firms perform better than those containing high book-to-market ratio firms. Nine portfolios are constructed according to size and book-to-market ratio of firms in order to explain the variations on excess portfolio returns by using market risk factor, size risk factor and book-to-

market ratio risk factors. Size factor has no effect on portfolios having big-size firms, but can explain the excess return variations on portfolios having small and medium-sized firms. Book-to-market ratio factor has an effect on portfolios with high book-to-market ratio firms. Fama and French three-factor model has power on explaining variations on excess portfolio returns, but this power is not strong throughout the test period on the ISE.

The Fama and French three-factor asset pricing model was developed as a response to poor performance of the CAPM in explaining realized returns. Fama and French (1993) argue that anomalies relating to the CAPM are captured by the three-factor model. Study base their model on the fact that average excess portfolio returns are sensible to three factors namely, first is to know excess market portfolio return; second is to know the difference between the excess return on a portfolio of small bonds and the excess return on a portfolio of big bonds (SMB, small minus Fama and big); and third, the difference between the excess return on a portfolio of high-book-to-market bonds and the excess return on a portfolio of low-book-to-market bonds (HML, high minus low). They formulate their model as:

$$E(R_i) - R_f = b_i(E (R_M - R_f)) + S_i E(SMB) + h_i E(HML)$$

Where,

$E(R_i)$: Expected rate of portfolio return.

R_f: Risk-free rate of return.

$E(R_M - R_f)$: Expected rate of excess market portfolio return.

E(SMB): Expected value of the difference between the excess return on a portfolio of small bonds and the excess return on a portfolio of big bonds.

E(HML): Expected value of the difference between the excess return on a portfolio of high-book-to-market bonds and the excess return on a portfolio of low-book-to-market bonds

This study found that the there is a relationship between risk and return in the Istanbul stock Exchange (ISE). It was concluded that approximately 63% R-square on average, hence the addition of other factors would be a better fitting and more suitable model.

Cavallo and Valenzuela1(2007) studied about the determinants of corporate risk and return in the emerging markets and their relationship. This study explores the determinants of corporate risk and return, bond spreads in emerging market economies. This study assesses the determinants of corporate risk using OLS for Corporate risk and return bonds issued in EMEs. The study used the following model for testing the relationship between variables.

$$S = \beta P_C + \beta Ds + \beta Fit + \beta Bit + \beta CRct + \beta Cct + \beta Gt + \mu$$

Where

P_C : Country fixed effects

Ds: Industry-dummies

Fit: Firm-level determinants of idiosyncratic corporate risk

Bit : Bond-structure characteristics

CRct : Sovereign risk

Cct : Country-level time-varying variables that affect the risk level of all firms in the economy (i.e., macroeconomic variables)

Gt : Global factors, and μ it is the error term

Using a largely unexploited dataset, this sudy found that corporate risk and return of bond spreads are determined by firm-specific variables, bond characteristics, macroeconomic conditions, sovereign risk, interest rate risk, inflation risk, credit risk and global factors. A variance decomposition analysis shows that firm-level characteristics account for the larger share of the variance.

A summary Table 3.2. is presented for identifying the methodologies adopted by earlier researchers that were previously used in the bond market.

Table 3.2
Methodologies Adopted by Earlier Researchers

Author	**Methodologies**
Sum (2012)	Ordinary Least Squares (OLS) regression
Gajjala (2006)	Ordinary Least Square (OLS) multiple regression
Randeniya and Wijerathna (2012)	Multivariate regression analysis
Fama and French (1992); Eraslana (2013)	Multiple regression model based on three-factor model
Cavallo and Valenzuela1(2007)	Ordinary Least Squares (OLS) regression

(Source: Secondary data)

3.6 Chapter Summary

This chapter includes several sukuk related aspects. Theories of risks in the bond market have been stated by a number of authors. A number of theories have been indicated by them. This chapter includes the empirical evidence of risk factors in sukuk structure. This chapter includes risk, return relationship in sukuk. Finally, methods of measuring risk used by previous studies also presented in this chapter. The next chapter is devoted to explaining the methodology used for this study.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter explains the methodology adopted in this study, which includes research design, hypotheses, conceptual framework of the study, sample design, development of statistical model and methods of data analysis.

4.2 Conceptual Framework of the Study

Four important groups of risk are identified from the literature presented in previous chapters. They are market risk, operational risk, credit risk and liquidity risk. Different risk dimensions of each group of risk also synthesized based on the literature. This has been clearly explained in the previous chapter. As such, market risk includes interest rate risk, inflation rate risk and the dollar rate risk. Operational risk includes consumer confidence risk and legal and Shari'ah compliance risk. Credit risk includes credit risk and maturity risk. Liquidity risk includes liquidity and reinvestment risk.

For knowing the risk and return relationship, these four groups of risk are widely used and accepted by the research scholars (eg., Al-Amine, 2012; Firoozye, 2012; Haral, 2010; Haider & Azhar, 2011; Hashmi, 2010; Razaq, 2010; Cheema, 2010; Mehmood, 2010; Nanaeva, 2010; Alawsat, 2008; Khan, 2012; Baeshen, 2009; Alsayyed, 2009; Tariq & Dar, 2007; Tariq, 2004; Omer, 2008; Quqa, 2008; Ullah, 2010; Kokab, 2010; Abdel-Khaleq, Ayman & Todd, 2009; Wilson, 2007; Howladar, 2006; Alexander,

2009; Agha & Grainger, 2009; Cooper, 2009; Richter & Sing, 2009; Hasan, 2008; Cosgrave, 2009; Wilson, 2007; and Karim, 2009).

These risks are most used in bond markets, which are suitable to sukuk market too. Hence, this study too considered all theses four groups of risks. In this study change in sukuk return is the dependent variables which are hypothesized to be influenced by four groups of risk factors. This relationship is expected from the literature review process. Thus the research framework is drawn. Figure 4.1. depicts the research framework to show the relationship between risk factors and return.

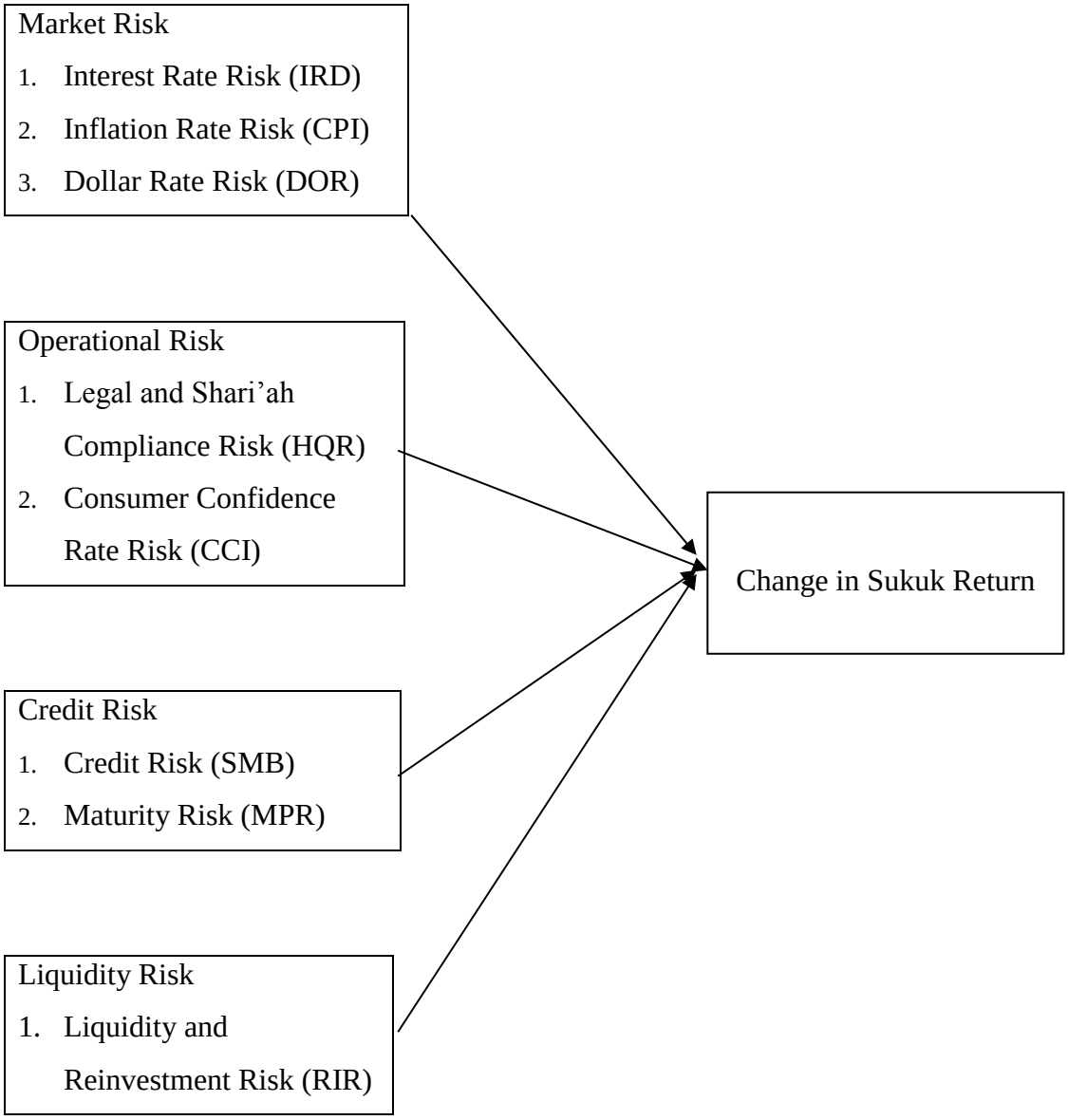

Figure 4.1: Conceptual Framework

Relationships between risk and return of sukuk depicted in this research work have also been studied by a few scholars (eg., Munro, 2014; Mueller, Stathopoulos, & Vedolin, 2014; Fathi, Zarei & Esfahani, 2012; Natarajan & Dharani, 2012; Bheenick, 2012; Oretha, 2012, Jong and Driessen, 2012; Friewald, Wagner & Zechner, 2011; Avramov et al. 2011; Dharani & Natarajan, 2011a; Dharani & Natarajan, 2011b; Albaity & Ahamad, 2008; Sadeghi, 2008; Baker & Wurgler, 2007, Estrella, 2006; Stalstedt, 2006; Campbell, Hilscher & Szilagyi, 2008; Hussein, 2005; Hussein & Omran, 2005; Ahmad, 2005; Chordia, Sarkar & Subrahmanyam, 2005; Hakim & Rashidian, 2004; Hussein, 2004; Ahamad & Ibrahim, 2002; Abdullah & Bacha, 2001; Berrada, Gibson, & Mougeot, 2001; Lemmon, 2000; Marston, 1999; Shetty & Manley, 1998; Dichev, 1998; Aamer, 1994; Fama & French, 1989; Campbell, 1987; Solnik & Noetzlin, 1982; Banz, 1981; Aggarwal, 1981; and Schwendiman & Pinches, 1975).

4.3 Development of Hypotheses

This study now turns the attention to the hypotheses development of the relationship between risk and return. The review of studies on the effect of risk on return has also been explained in the section of the literature review. The following section explains how hypotheses are developed based on both the literature and theory.

4.3.1 Interest Rate Risk vs Sukuk Return

The fundamental principle of sukuk investing is that the interest rate and sukuk prices generally move in opposite directions. When market interest rate rises, the prices of sukuk fall. Al-Amine (2012) has argued that any increase in interest rate directs to the decrease in the fixed return sukuk values. Increase in interest rate will result in a decrease in sukuk price and vice versa (Haral, 2010; Mehmood, 2010). The similar

findings were identified some other authors as well (Razaq, 2010; Cheema, 2010; Hashmi, 2010; Quqa, 2008; Fathi, Zarei & Esfahani, 2012) showed that interest rate risk and diversification risk have significant correlation with returns. Further, the arbitrage pricing theory (Ross, 1976) clearly shows the link between economic factors and market information and the expected return of an investment. These factors can be various macro-economic factors or theoretical market indices such as interest rate. Taken together, the above arguments suggest that interest rate risk influence sukuk return. This is consistent with empirical evidence that interest rate risk have significant correlation with returns. Therefore, the following hypothesis is developed.

H1: There is a relationship between interest rate risk and sukuk return.

4.3.2 Inflation Rate Risk vs Sukuk Return

The second risk dimension of market risk is inflation rate risk. Inflation rate risk indicates the rate of exchange between current and future values. But, the real issue is the actual rate of interest, the rate of exchange between current and future goods and services. So, the actual interest rate must be adjusted for the expected inflation, because financial contracts are normally declared in nominal terms. Therefore, inflation may create a worse situation in sukuk market. Inflation risk is the risk that the rate of price increases in the economy and deteriorates the returns associated with the bond. When the inflation is higher than expected, the borrower gains at the expense of the lender and vice versa (Aamer, 1994; Tobin; 1958; Fama & French, 1989; Banz, 1981). Therefore, it is possible to expect a relationship between inflation rate risk and sukuk return. Inflation rate risk has a relationship with return. The similar findings were identified by some other authors as well (Investopedia, 2009; Campbell, 1987). Based on the above argument, it is possible to predict that there is a

relationship between inflation rate risk and sukuk return. Therefore, the following hypothesis is developed.

H2: There is a relationship between inflation rate risk and sukuk return.

4.3.3 Dollar Rate Risk vs Sukuk Return

The third risk dimension of market risk is dollar rate risk. Dollar rate risk occurs when a sukuk has payments that are valued and named in a foreign currency having uncertain cash flows. The risk that the foreign currency will depreciate in relation to the local currency is referred to as the dollar rate risk. In the event of a divergence between the unit of currency in which the assets in the sukuk pool are denominated and the currency of denomination in which the sukuk funds are accumulated, the sukuk investors are rendered to dollar rate risk. The currency risk occurring from inauspicious exchange rate fluctuation will react on foreign exchange position (Quqa, 2008). Currency exchange risk occurs when an investor buys sukuk in foreign currencies (Mehmood, 2010). Since sukuk sampled for this study are traded in dollar, dollar rate risk is considered as foreign currency risk. Currency risk impacts return positively (Shetty & Manley, 1998; Aggarwal, 1981; Chen et al. 2014). However, Soenan and Hennigar (1988) found the negative relationship between currency risk and return. Based on the above discussion, the following hypothesis is developed.

H3: There is a relationship between dollar rate risk and sukuk return.

4.3.4 Consumer Confidence Risk vs Sukuk Return

The second group of risk is operational risk. It includes consumer confidence risk and legal &Shari'ah compliance risk. Studies about consumer confidence risk and return in the bond market found there is a relationship between them (Estrella, 2006;

Lemmon, 2000; Baker & Wurgler, 2007). Higher risk is caused by low consumer confidence. Further, Marston (1999) studied about the consumer confidence and the return and found that consumer confidence risk and return are inversely related with one another. When there is a confidence for business or consumers on the liquidification on an instrument such instruments will be invested by them actively. So, consumer confidence risk may have a relationship with sukuk return. Based on the above argument following hypothesis is developed.

H4: There is a relationship between consumer confidence risk and sukuk return.

4.3.5 Legal and Shari'ah Compliance Risk vs Sukuk Return

The next risk dimension of operational risk is Shari'ah compliance risk. Shari'ah compliance risk refers to the loss of asset value as a result of the issuers' breach of its fiduciary responsibilities with respect to compliance with Shari'ah. The dissolution clauses of the sukuk prospectus define events that will make the sukuk deed null and void due to Shari'ah non-compliance. There are many Shari'ah compliance risks associated with sukuk, for example, Shari'ah compliance risk regarding poor regulations of the sukuk mechanism (Mehmood, 2010; Razaq, 2010; Haral, 2010). As the sukuk age grows and it expands to the world its risks are coming to emerge. The most important risk to the sukuk market is the Shari'ah compliance risk and it needs to be dealt urgently (Razaq, 2010). Further, there is no assurance that a sukuk structure approved by one Shari'ah board will be approved by another board (Al-Amine, 2012). Shari'ah compliance risk can also be in the form of using non Shari'ah compliance argument as a defense against fulfilling its obligation at the time of distress (Howladar, 2010). Therefore, a relationship between Shari'ah compliance risk

and return is possible. Based on this ground the following hypothesis can be developed.

H5: There is a relationship between legal and Shari'ah compliance risk and sukuk return.

4.3.6 Credit Risk vs Sukuk Return

The third group of risk category is credit risk. It includes two risk dimensions namely, credit risk and maturity risk. Credit risk refers to the probability that an asset or loan becomes irrecoverable due to a default or delay in settlements. The credit risks and maturity risk are inherent in Islamic finance. Ijarah, Istisna, Salam and Murabaha based sukuk are the major sukuk issuances that have mainly involved in asset contracts. Mode of finance is associated with numerous credit risk considerations. Instruments and other credit risk management mechanisms do not have opportunity for Islamic institutions due to Shari'ah considerations unlike conventional financial institutions. Firms with low credit risk, realize higher returns than those firms with high credit risk. Some authors argue that, there is a relationship between credit risk and return (Avramov et al. 2011; Bheenick, 2012; Oretha, 2012; Dichev, 1998; Campbell, Hilscher & Szilagyi, 2008). However, the relationship between these two variables has contradictory results among various samples. Taken together, credit risk should have a relationship with return. Based on this argument following hypothesis is developed.

H6: There is a relationship between credit risk and sukuk return.

4.3.7 Maturity Rate Risk vs Sukuk Return

The second risk dimension of credit risk is maturity risk. For maturity risk, there is variation in risk that changes the value of a sukuk periodically. At the same time, it is

issued to when it matures and the period is determined by maturity. Bonds with a longer maturity risk generally have a higher interest rate risk than similar bonds with shorter maturity risk (SEC, 2014). Maturity risk and interest rate risk affect returns (Haral, 2010; Cheema, 2010; Hashmi, 2010; Ullah, 2010; Kokab, 2010). Bonds with a longer maturity risk generally have a higher interest rate risk than similar bonds with shorter maturity risk. Predetermination of fixed return will not lead to some risk for the sukuk holders. Therefore, it is possible to hypothesize to have a relationship between maturity risk and return. Based on the above discussion, the following hypothesis is developed.

H7: There is a relationship between maturity rate risk and sukuk return.

4.3.8 Liquidity and Reinvestment risk vs Sukuk Return

The last group of risk is liquidity and reinvestment risk. There is liberty for investors to invest and divest when they prefer to do so. There is a possibility of liquidity risk that is not being able to transact in certain assets (Barclays, 2013). There is a relationship between liquidity risk and return (Chordia, Sarkar & Subrahmanyam, 2005; Jong & Driessen, 2012). Reinvestment risk is the risk that the proceeds from a bond will be reinvested at a lower rate than the bond originally provided. Reinvestment risk occurs when a sukuk pays regular interest and the interest payment may have to be reinvested at a lower interest rate. Usually, the reinvestment risk is greater for sukuk with longer maturity and for sukuk with lower interest payments. Therefore, it is possible to hypothesize that there is a relationship between liquidity and reinvestment risk and sukuk return. Based on the above argument following hypothesis is developed.

H8: There is a relationship between liquidity and reinvestment risk and sukuk return.

4.4 Development of Statistical Model

This study expects, that the change in risk has a relationship with change in sukuk return. Hence, the present study employs multiple regression equation model technique in the following manner:

$$\Delta \text{ in Sukuk Return (SR)} = \alpha_1 + \Delta\text{in Market Risk} + \Delta \text{ in Operational Risk} + \Delta \text{ in Credit Risk} + \Delta \text{ in Liquidity Risk} + \varepsilon_t$$

$$\mathbf{\Delta \text{ in Sukuk Return (SR)} = \alpha_1 + \Delta MR + \Delta OR + \Delta CR + \Delta LR + \varepsilon_i} \quad \text{----------(1)}$$

This study considers variables as indicated in the model 1. Next, this study considers variables individually for a more detailed analysis. Then, all individual variables are studied together for further detailed analysis as indicated below. They are shown in model 2.

$$\Delta \text{ in Sukuk Return} = \alpha_i + \beta_1\Delta a + \beta_2\Delta b + \beta_3\Delta c + \beta_4\Delta d + \beta_5\Delta e + \beta_6\Delta f + \beta_7\Delta g + \beta_8\Delta h + \varepsilon_i \quad \text{.....(2)}$$

Where:

1. Interest Rate Risk ($\beta_1\Delta a$)
2. Inflation Rate Risk ($\beta_2\Delta b$)
3. Dollar Rate Risk ($\beta_3\Delta c$)
4. Legal and Shari'ah Compliance Risk ($\beta_4\Delta d$)
5. Consumer Confidence Risk ($\beta_5\Delta e$)
6. Credit Risk ($\beta_6\Delta f$)
7. Maturity Rate Risk ($\beta_7\Delta g$)
8. Liquidity and Reinvestment Risk ($\beta_8\Delta h$)

Various models have been constructed and used to explain variability of excess returns on sukuk with different maturities, markets, structures and sectors. A model is employed to determine the excess return variability of the sukuk return index. The explanatory variables are libor 6-month certificate of deposit rate, consumer price

index, U.S. dollar trade weighted index, consumer confidence rate index, higher quality rate index, maturity period rate index, size risk factor (SMB)[1] and reinvestment index. The researcher developed the following model for this study.

$$R_{s-rf} = \alpha_t + \gamma_1 \Delta IRD_t + \gamma_2 \Delta CPI_t + \gamma_3 \Delta DOR_t + \gamma_4 \Delta CCI_t + \gamma_5 \Delta MPR_t + \gamma_7 \Delta SMB_t + \gamma_6 \Delta HQR_t + \gamma_8 \Delta RIR_t + \varepsilon_t \quad \text{……} \quad \text{……} \quad (3)$$

Many researchers have studied about different index for studying bond market. For instance, IRD_t is used to measure interest rate risk, CPI_t is used to measure inflation rate risk, DOR_t is used to measure dollar rate risk, CCI_t is used to measure consumer confident risk, MPR_t is used to measure maturity risk, SMB_t is used to measure credit risk, HQRt is used to measure Shari'ah compliance risk, and RIR_t is the reinvestment risk used to measure liquidity risk.

Although these data are available countrywide, the present study is based on the global sukuk market. Since Bahrain, Malaysia, UK and UAE had the most successful operation in the sukuk market worldwide, data are obtained from these countries. These were based on their country basis, therefore, these data are converted for fitting to the present study. For this purpose, firstly, the data were converted into average and variance. Second, logs are found for converting data. Third, ordinary least squares (OLS) analysis is applied for analyzing data.

1.Size risk factor (SMB) is a credit rating agency (CRA, also called a Ratings Service) is a company that assigns credit ratings these are the ratings of the debtor's ability to pay back the debt by making timely interest payments and of the likelihood of default.

4.5 Sample Design

This research focuses on different risks and returns in the sukuk structure in Islamic financial market. Globally, 2794 sukuk have been issued up to 2013. This is considered as the population of this study. However, out of that 224 are traded and listed sukuk which is 25% of the total value of the sukuk in the global market are covered in this study. The researcher has analyzed the data from the developed sukuk market indices such as HSBC/ Nasdaq Dubai sukuk indices and Dow Jones sukuk indices. This research covers nine year sample period beginning from January 2005 to June 2013. The main indices have various sub-indices based on global, maturity, rating, sector, geography amongst other criteria. The 108 monthly observations of adjusted closed values of each index are downloaded from websites of respective sukuk markets.

4.6 Data Collection

Table: 4.1
Listed Sukuk in Various Stock Exchanges

Listing Stock Exchange	Number of Issues	Amount Issued ($Million)
Bahrain Stock Exchange	27	4,141
Bursa Malaysia	19	8,048
Indonesia Stock Exchange	53	4,985
London Stock Exchange	41	27,029
Nasdaq Dubai	25	22,273
Saudi Stock Exchange	8	9,673
Irish Stock Exchange	8	3,703
Luxembourg Stock Exchange	13	5,687
Hong Kong Stock Exchange	5	4,358
Singapore Stock Exchange	8	3474

Sources: Thomson Reuters (2013)

Listed sukuk in the well-known sukuk markets such as Bahrain stock exchange, Bursa Malaysia, Indonesia stock exchange, London stock exchange, Luxembourg stock exchange, Nasdaq Dubai exchange, Saudi stock exchange, Irish stock exchange, Hong Kong stock exchange and Singapore stock exchange have been chosen for this study. Sukuk indices are developed based on these sukuk markets. The details of these markets, number of issues and amountof issues are presented in the Table 4.1.

Table 4.2
HSBC/ NASDAQ Dubai Sukuk Indices

IndexName	**Bloomberg**	**Base Date and History Availability**
HSBC/ NASDAQ Dubai US Dollar Sukuk Index (SKBI)	Sukuk (SKBI)	01/01/2005
HSBC/ NASDAQ Dubai Sovereign US Dollar Sukuk Index (SUSI)	Sovereign (SUSI)	01/01/2005
HSBC/ NASDAQ Dubai Corporate US Dollar Sukuk (SUCI)	Corporates (SUCI)	01/01/2005
HSBC/ NASDAQ Dubai Financial Services US Dollar Sukuk Index (SUFI)	Financial Services(SUFI)	01/01/2005
HSBC/ NASDAQ Dubai Amanah US Dollar Sukuk Index (HASI)	HSBC Amanah (HASI)	01/01/2005
HSBC/ NASDAQ Dubai US Dollar NASDAQ Dubai-Listed Sukuk Index(SKIX)	NASDAQ Dubai Listed (SKIX)	01/01/2005
HSBC/ NASDAQ Dubai GCC US Dollar Sukuk Index (GSKI)	GCC (GSKI)	01/01/2005
HSBC/ NASDAQ Dubai GCC Corporate US Dollar Sukuk Index (GSKC)	GCC Corporates (GSKC)	01/01/2005
HSBC/ NASDAQ Dubai GCC Financial Services US Dollar Sukuk Index (GSKF)	GCC Financial Services (GSKF)	01/01/2005
HSBC/ NASDAQ Dubai UAE US Dollar Sukuk Index (AESI)	UAE (AESI)	01/01/2005
HSBC/ NASDAQ Dubai BH US Dollar Sukuk Index (BHSI)	BH(BHSI)	01/01/2005
HSBC/ NASDAQ Dubai MY US Dollar Sukuk Index (MYSI)	MY(MYSI)	01/01/2005

Sources HSBC/ NASDAQ Dubai (2013)

Data from HSBC/ Nasdaq Dubai sukuk indices, global sukuk index (SKBI), sovereign sukuk index (SUSI), corporates sukuk index (SUCI), financial services sukuk index

(SUFI), HSBC amanah sukuk index (HASI), Nasdaq Dubai listed sukuk index(SKIX), GCC sukuk index (GSKI) and GCC corporates sukuk index (GSKC), GCC financial services sukuk index (GSKF), United Arab Emirate sukuk index (AESI), Bahrain sukuk index (BHSI) and Malaysia sukuk index (MYSI) have been used in this study. Details of these are presented in the Table 4.2.

Data from Dow Jones sukuk indices encompases of Dow Jones sukuk price return index (DJSUKUK), Dow Jones sukuk AAA-rated total return index (DJSUK3AT), Dow Jones sukuk AA-rated total return index (DJSUK2AT), Dow Jones sukuk A-rated total return index (DJSUK1AT), Dow Jones sukuk BBB-rated total return index (DJSUK3BT), Dow Jones sukuk 1-3 year total return index (DJSUK3T), Dow Jones sukuk 3-5 year total return index(DJSUK5T), Dow Jones sukuk 5-7 year total return index (DJSUK7T), and Dow Jones sukuk 7-10 year total return index (DJSUK10T) have been used in this study.Details of these are presented in the Table 4.3.

Table 4.3
Dow Jones Sukuk Indices

Index Name	**Bloomberg Ticker**	**Base Date and History Availability**
Dow Jones Sukuk Price Return Index	DJSUKUK	01/01/2005
Dow Jones Sukuk AAA-Rated Total Return Index	DJSUK3AT	01/01/2005
Dow Jones Sukuk AA-Rated Total Return Index	DJSUK2AT	01/01/2005
Dow Jones Sukuk A-Rated Total Return Index	DJSUK1AT	01/01/2005
Dow Jones Sukuk BBB-Rated Total Return Index	DJSUK3BT	01/01/2005
Dow Jones Sukuk 1-3 Year Total Return Index	DJSUK3T	01/01/2005
Dow Jones Sukuk 3-5 Year Total Return Index	DJSUK5T	01/01/2005
Dow Jones Sukuk 5-7 Year Total Return Index	DJSUK7T	01/01/2005
Dow Jones Sukuk 7-10 Year Total Return Index	DJSUK10T	01/01/2005

Source: Dow Jones Sukuk Market (2013)

4.7 Working Definitions of the Variables

This study framework outlined both independent and dependent variables. The dependent variable is sukuk return. Independent variables are interest rate risk, inflation risk, dollar rate (exchange rate risk) risk, consumer confidence risk, legal & Shari'ah compliance risk, credit risk, maturity risk and liquidity and reinvestment risk. Method of calculation and composition of these variables are discussed in the succeeding section (see Appendix A).

IRD is the interest rate from Libor rate of 6 month deposited rate that is accessed from the www.fedprimerate.com. Libor is the most widely used benchmark for short term interest rates in the world, primarily because most of the world's largest borrowers borrow money on the London market. Because it is so prominent, it is often used in other transactions, such as swaps. In case of calculation of Libor rate, an interest rate swaps may give the floating rate as "Libor+/- X basepoints." It is set each day by the British Bankers Association, which calculates it by averaging short term, inter-bank, deposit interest rates among the most creditworthy banks. This study considers interest rate for 6 month deposit rate due to the fact that sukuk market allows the Libor rate as its benchmark for determining the return rate.

The consumer price index (CPI) is the inflation rate the average of fluctuation of goods and services in all the related countries. This information has been accessed from the www.tradingeconomics.com. This is the average of the related countries. The CPI is the index is constrained to only measure the changes in prices faced by all households. The CPI is simply a measure of the changes in the price of this fixed basket as the prices of items in it change. Changes in price, i.e. inflation volatility of

price have an effect on purchasing power all income households. It also affects the return determination of sukuk investors.

DOR refers to US dollar rate. Sukuk trading has been listed in US dollar rate. This is why the change in the US dollar rate creates change in sukuk return. Therefore, DOR is considered for the study and taken from the website of www.treasury.gov. The dollar index (DXY) is a synthetic index. It is calculated as a weighted geometric mean of the dollar's value compared only with "basket" of 6 other major fiat currencies, which are in Euro (EUR), 57.6% weight, Japanese yen (JPY) 13.6% weight, Pound sterling (GBP), 11.9% weight, Canadian dollar (CAD), 9.1% weight, Swedish krona (SEK), 4.2% weight and Swiss Franc (CHF) 3.6% weight. Suluk market has been listed US dollar rate. Changes in fluctuation in USD will alter the return rate of sukuk.

CCI refers to consumer confidence rate. It is also the difference between consumption and saving. The change in CCI creates in a change in sukuk return. This data have been accessed from the www.tradingeconomics.com. This is the average of the related countries. Consumer confidence, measured by the consumer confidence index (CCI), is defined as the degree of optimism on the state of the economy that consumers are expressing through their activities of saving and spending. The CCI is prepared by the Conference Board and was first calculated in 1985. In that year, the result of the index was arbitrarily set to 100, representing the index's benchmark. This value is adjusted monthly based on the results of a household survey of consumers' opinions on current conditions and future economic expectations. Since consumer spending is so important to the nation's financial health, the consumer confidence index is one of the most accurate and closely watched economic indicators. The index is based on survey households, measuring their optimism on the economy's health.

MPR refers to maturity risk. It has been created by Dow Jones Based on ten year maturity period. This data have been accessed from the www.djindices.com. The goal of the Dow Jones Corporate Bond Index is to include the most liquid bonds per maturity for each sector. All issues in the Dow Jones Corporate Bond Index remain in the index until the month-end review, regardless of market condition changes. Factors considered in the review process include the facts such as new issues, credit rating changes, maturity of the issues and changes in outstanding amounts. When there is fluctuation in maturity sukuk return will influence on sukuk.

HQR refers to operational risk. This is based on the higher quality of sukuk that depends on Shari'ah compliance. This is also created by Dow Jones Bloomberg Ticker DJSHKT. This data have been accessed from the www.djindices.com. AAOIFI and its related sukuk companies may act in several roles in relation to the fund such as promoter, distributor and management company, as well as entering into Shari'ah compliant agreements with the fund, which may involve conflicts of interest. The fund is not guaranteed and investment is at risk. The value of investment may go down as well as up.The aim is for investment to reflect the performance of the Dow Jones Islamic Market Titans (TR) Index, which is designed to reflect the performance sukuk of a number of companies selected in compliance with Islamic investment guidelines. Fifty companies are from the US market and 25 companies are from each of the European and Asia/Pacific markets. Companies are selected on the basis of their size based on the combined value of a company's readily available shares compared to other companies. A company's weighting in the index is based on its relative size, but one company cannot make up more than 10% of the index. The index is rebalanced every quarter and its composition reviewed in June of every year. Change in this influence the sukuk market.

SMB refers to size risk factor that is used for credit risk. This is rated by Dow Jone Bloomberg Ticker DJSUK3BT on the basis of the low rate of rating termed as "BBB" sukuk. Change in this influence the sukuk market. The credit rating is accessed from the www.moodys.com. As financial market complexity and borrower diversity have grown over time, investors and regulators have increased their reliance on the opinions of the credit rating agencies. Credit ratings are in use in the financial markets of most developed economies as well in emerging market countries. The rating is graded into two broad categories investment grade and non-investment grade. The investment grade comprises ratings of AAA, AA, A and BBB, whilst the non-investment grade comprise ratings of BB, B, C and D. Bond or Sukuk ratings assigned by all the rating agencies are meant to indicate the likelihood of default or delayed payment of the security.

RIR refers to liquidity and reinvestment rate. This is created by Dow John Bloomberg Ticker DJSUKTXR. Data are gathered from the www.djindices.com. Appropriate measures of liquidity risk are important to devise regulatory requirements. Thus, the liquidity risk index is estimated on violations of arbitrage relationships in various sukuk- markets, whereby such violations are interpreted as indicators of liquidity stress in global sukuk markets. Sukuk are illiquid instruments compared to conventional bonds caused by lack of secondary market activity. Such liquidity imposes more risk for investors that seek to trade their holdings if it is needed. There is currently no-well structured and adequately liquid secondary market and most of the sukuk tend to be held until maturity. Change in this influence the sukuk market.

Rf refers to risk free rate and it is based on US risk free rate. This is accessed from the www.treasury.gov. The US risk free return is estimated and issued in U.S. dollars. Each bond must have a maturity greater than or equal to one month from the

rebalancing date. Securities must be sovereign securities issued by the U.S. Treasury. Floating rate securities are included. A minimum par of US$ 1 billion at each rebalancing is required. Cash settlement bonds issued, but not settled prior to the month-end rebalancing are included in the index. The index is market-value-weighted. Based on new issuance, size and maturity, the bonds in the index are subject to change every month, effective after the close of the last business day of the month. This is the base for all country's risk free rate of return as a benchmark. Due to the fact that this is appropriate to the sukuk market, excess return of the sukuk is calculated on by deducting sukuk rate of return from US risk free rate.

Following the independent variables, outline of dependent variable from the sukuk return which is collected from Dow Jone sukuk indices and Nasdaq Dubai sukuk indices. Outline of calculation, composition and methods are discussed in the succeeding section.

Dow Jone sukuk indices have been composed on the basis of global U.S. dollar-denominated investment-grade bonds that are Shari'ah-compliant. Stated coupon is based upon fixed rate and floating rate while minimum maturity has the period one year. Weighting is weighted by market capitalization updated monthly. Minimum size outstanding is USD 200 million. The minimum quality is an explicit or implicit rating of at least BBB-/Baa3 by S & P, Moody's or a leading rating agency. The structure is on the basis of bullet or make-whole. Sukuk return is calculated on a daily basis. All pricing is provided by IDC. At the same time, monthly review is conducted. The base date is September30, 2005 (source: web site, www.spdji.com).

Based on the above methodology, the following indices are considered as the dependent variable from Dow Jone such as global, maturity and rating indices. First

index is the Dow Jones sukuk price return index is taken from the Bloomberg Ticker DJSUKUK coded as GPRs is based on global. The second category is based upon maturity basis. There are four categories. The first is Dow Jones sukuk 1-3 year total return index that takes into grant Bloomberg Ticker DJSUK3T coded as M3TRs. The second index is the Dow Jones sukuk 3-5 year total return index considered in this study taken from Bloomberg Ticker DJSUK5T coded as 5TRs. The third index is the Dow Jones sukuk 5-7 year total return index derived from Bloomberg Ticker DJSUK7T coded as M7TRs. The fourth index is the Dow Jones sukuk 7-10 year total return index accessed from Bloomberg Ticker DJSUK10T symbolized as M10TRs.

Third category based on the rating is composed of four indices. The first index is the Dow Jones sukuk AAA rated total return index that is taken from the Bloomberg Ticker DJSUK3AT which is coded as R3ARs. The second index is the Dow Jones sukuk AA rated total return index that is taken from Bloomberg Ticker DJSUK2AT which is coded as R2ARs. The third index is the Dow Jones sukuk A rated total return index that is taken from Bloomberg Ticker DJSUK1AT that is coded as R1ARs. The fourth index is the Dow Jones sukuk BBB - rated total return index that is derived from Bloomberg Ticker DJSUK3BT which is coded as R3BRs.

HSBC/ NASDAQ Dubai sukuk indices are composed of specific methodology. Return calculation is based upon total return. Total return, including price changes, accrued and re-invested coupon payments. A sub-index is calculated as the cumulative value of the sum of the weighted daily total return of each constituent relative to its base level. The MEBI is calculated as the cumulative value of the weighted daily total return of each sub-index relative to 100. The index is based upon 31 December 2004 = 100. Pricing is based on HSBC bid prices at the Middle East

close. Weightings are the liquidity adjusted market capitalization. Coupon reinvestment is made up to the full amount of cash coupon payments will be held in the cash in the month, and will be re-invested in the corresponding sub-index at month end. Addition of new constituents are qualified new issues launched intra month are added to the index on the first business day of the following month with an assigned liquidity ranking. The ranking is thereafter reviewed quarterly. Withdrawal of current constituent is month end at which the remaining maturity is less than one year. Announcement of new liquidity ranking relies on quarter end. Adjustment to new liquidity ranking bases on actual adjustment for constituents' liquidity rankings occurs one full month after the announcement of a ranking change. Availability is every London business day (source: web site: www.nasdaqdubai.com).

There are four categories of indices. The first category is for global sectorial. The second category is the specific sukuk market. The third category is the GCC sectorial. The fourth category is the countrywide indices. In the first category, there are four indices. The first index is the HSBC/ NASDAQ Dubai US dollar sukuk index, which is coded as SKBI. The second index is the Sovereign (SUSI) - HSBC/ NASDAQ Dubai sovereign US dollar sukuk index coded as SUSI. The third index is the HSBC/ NASDAQ Dubai corporate US dollar sukuk, which is coded as SUCI. The fourth index is the HSBC/ NASDAQ Dubai financial services US dollar sukuk index that is coded as SUFI.

In the second category, there are two indices. The first index is the HSBC/ NASDAQ Dubai Amanah US dollar sukuk index coded as HASI. The second index is the HSBC/ NASDAQ Dubai US dollar NASDAQ Dubai listed sukuk index coded as SKIX. In the third category, there are three indices. The first index is the HSBC/ NASDAQ Dubai GCC US dollar sukuk index coded as GSKI. The second index is

the HSBC/ NASDAQ Dubai GCC corporate US dollar sukuk index coded as GSKC. The third index is the HSBC/ NASDAQ Dubai GCC financial services US dollar sukuk index coded as GSKF.

In the fourth category, there are three indices. The firs index is the HSBC/ NASDAQ Dubai UAE US dollar sukuk index coded as AESI. The second index is the HSBC/ NASDAQ Dubai Bahrain US dollar sukuk index coded as BHSI. The third index is the HSBC/ NASDAQ Dubai Malaysia US dollar sukuk index coded as MYSI.

The above variables are summarized in tabular format. This summary is made up of variables, its description, source, time horizon and number of observations that are presented in the Table 4.4.

Table 4.4
Descriptions of variables and Sources of Data

Variable	Description	Source	Time Horizon	# of Observation
IRD	Interest rate	www.fedprimerate.com	2005-2013	108
CPI	Inflation rate	www.tradingeconomics.com	2005-2013	108
DOR	US dollar rate	www.treasury.gov	2005-2013	108
CCI	Consumer confidence rate	www.tradingeconomics.com	2005-2013	108
MPR	Maturity rate	Bloomberg Ticker DJSUK10T	2005-2013	108
HQR	Operational risk	Bloomberg Ticker DJSHKT	2005-2013	108
SMB	Size risk factor	Bloomberg Ticker DJSUK3BT	2005-2013	108
RIR	Liquidity rate	Bloomberg Ticker DJSUKTXR	2005-2013	108
Rf	Risk free rate	www.treasury.gov	2005-2013	108
GPRs	Dow Jones Sukuk Price Return Index	Bloomberg Ticker DJSUKUK	2005-2013	108
M3TRs	Dow Jones Sukuk 1-3 Year Total Return Index	Bloomberg Ticker DJSUK3T	2005-2013	108
M5TRs	Dow Jones Sukuk 3-5 Year Total Return Index	Bloomberg Ticker DJSUK5T	2005-2013	108
M7TRs	Dow Jones Sukuk 5-7 Year Total Return Index	Bloomberg Ticker DJSUK7T	2005-2013	108
M10TRs	Dow Jones Sukuk 7-10 Year Total Return Index	Bloomberg Ticker DJSUK10T	2005-2013	108

Table 4.4 (Continued)

R3ARs	Dow Jones Sukuk AAA-Rated Total Return Index	Bloomberg Ticker DJSUK3AT	2005-2013	108
R2ARs	Dow Jones Sukuk AA-Rated Total Return Index	Bloomberg Ticker DJSUK2AT	2005-2013	108
R1ARs	Dow Jones Sukuk A-Rated Total Return Index	Bloomberg Ticker DJSUK1AT	2005-2013	108
R3BRs	Dow Jones Sukuk BBB-Rated Total Return Index	Bloomberg Ticker DJSUK3BT	2005-2013	108
SKBI	HSBC/ NASDAQ Dubai US Dollar Sukuk Index	Bloomberg Sukuk (SKBI)	2005-2013	108
SUSI	HSBC/ NASDAQ Dubai Sovereign US Dollar Sukuk Index (SUSI)	Bloomberg Sovereign (SUSI)	2005-2013	108
SUFI	HSBC/ NASDAQ Dubai Financial Services US Dollar Sukuk Index (SUFI)	Bloomberg Financial Services(SUFI)	2005-2013	108
HASI	HSBC/ NASDAQ Dubai Amanah US Dollar Sukuk Index (HASI)	Bloomberg HSBC Amanah (HASI)	2005-2013	108
SKIX	HSBC/ NASDAQ Dubai US Dollar NASDAQ Dubai-Listed Sukuk Index(SKIX)	Bloomberg NASDAQ Dubai Listed (SKIX)	2005-2013	108
GSKI	HSBC/ NASDAQ Dubai GCC US Dollar Sukuk Index (GSKI)	Bloomberg GCC (GSKI)	2005-2013	108
GSKC	HSBC/ NASDAQ Dubai GCC Corporate US Dollar Sukuk Index (GSKC)	Bloomberg GCC Corporates (GSKC)	2005-2013	108
GSKF	HSBC/ NASDAQ Dubai GCC Financial Services US Dollar Sukuk Index	Bloomberg GCC Financial Services(GSKF)	2005-2013	108
AESI	HSBC/ NASDAQ Dubai UAE US Dollar Sukuk Index (AESI)	Bloomberg UAE (AESI)	2005-2013	108
BHSI	HSBC/ NASDAQ Dubai Bahrain US Dollar Sukuk Index (AESI)	Bloomberg BH (BHSI)	2005-2013	108
MYSI	HSBC/ NASDAQ Dubai Malaysia US Dollar Sukuk Index (AESI)	Bloomberg MY (MYSI)	2005-2013	108

Source: Relavane Data Base

For the convenience handling data and sample is abbreviated. Global return of sukuk that are Dow Jones price sukuk return abbreviated as GPRsRf, the maturity basis of Dow Jones sukuk return that are Dow Jones 1-3 sukuk return abbreviated as M3TRsRf, Dow Jones 3-5 sukuk return abbreviated as M5TRsRf, Dow Jones 5-7 sukuk return abbreviated as M7TRsRf and Dow Jones7-10 sukuk return abbreviated as M10TRsRf. Rating basis of Dow Jones sukuk return that is Dow Jones AAA rated sukuk return of abbreviated as R3ARsRf,Dow Jones AA rated sukuk return

abbreviated as R2ARsRf, Dow Jones A rated sukuk return abbreviated as R1ARsRf, and Dow Jones BBB rated sukuk return abbreviated as R3BRsRf.

Global Nasdaq Dubai sector basis of sukuk return that are Nasdaq Dubai sukuk return (SKBI) abbreviated as SKBIRf, Nasdaq Dubai sovereign sukuk return (SUSI) abbreviated as SUSIRf, Nasdaq Dubai corporate sukuk return of (SUCI) abbreviated as SUCIRf, and Nasdaq Dubai financial sukuk return (SUFI) abbreviated as SUFIRf. Nasdaq Dubai return of special sukuk market that are Nasdaq Dubai Amanah sukuk return (HASI) abbreviated as HASIRf and Nasdaq Dubai Dubai listed sukuk return (SKIX) abbreviated as SKIXRf.GCC sector basis of sukuk market return that is Nasdaq Dubai GCC sukuk return (GSKI) abbreviated as GSKIRf, Nasdaq Dubai GCC corporate sukuk return (GSKC) abbreviated as GSKCRf, and Nasdaq Dubai GCC financial sukuk return (GSKF) abbreviated as GSKFRf. Finally selected country wise sukuk market return that are Nasdaq Dubai sukuk return United Arab Emirates (AESI) abbreviated as AESIRf, Nasdaq Dubai return sukuk Bahrain (BHSI) abbreviated as BHSIRf and Nasdaq Dubai sukuk return Malaysia (MYSI)abbreviated as MYSIRf are the dependent variables.This study considers excess return from the sukuk. Study change in sukuk return index deducts change in risk free rate. This is because in all the dependent variables are coded as considering risk free rate.

These independent variables are determined by interest rate risk coded as IRD, inflation risk which is measured by CPI, Dollar rate risk coded as DOR, consumer confidence rate risk abbreviated as CCI, maturity risk coded as MPR, credit risk coded as SMB, Shari’ah compliance risk abbreviated as HQR, and liquidity risk coded as RIR.

An index tells us the percentage change in a variable over time. In order to calculate an index the change in a both independent and dependent variable between two periods are considered. All the data are on a monthly. Thus, previous month number and present month number are considered to calculate the change in the variables. Thus, the index is calculated using the following formula:

Change in Index = [(Value of present month / Value of previous month) * 100 – 100]

$$ln(n) = \frac{log(n)}{log(n-1)}$$

Log = log Value of present month/ log Value of previous months

Ln =Ln Value of present month/ Ln Value of previous months

4.8 Analysis Techniques

After the data collection, for analyzing and testing hypotheses, initial data were screened for auto correlation, normality, multi-collinearity and heteroscedasticity. Then data have been analyzed using descriptive statistics mean, and standard deviation. Data were also presented using line charts to analyze the fluctuations between independent and dependent variables. Bivariate correlations also used to test the relationship between variables. Further, multiple regression analysis has been conducted to test the model in this study.

This study analyses the regression results that cover model summary, ANOVA, and coefficient. Model summary outlines about R, R square, adjusted R square, and standard error. Similarly, ANOVA table reveals sum of squares, df, mean square, F value and its significance. Likewise, coefficient table discloses beta, standard error, t value, significance, tolerance (TOL) and variance inflation factor (VIF). TOL and VIF

are used to check multicollienearity. Conclusions have been drawn from the findings. For all above data screening and data analysis purpose SPSS and Eviews software applications are used in this study.

4.8 Chapter Summary

This research is designed quantitatively. The researcher collected data from 2005 to 2013. A conceptual framework is developed for the research study. Research framework includes market risk, operational risk, credit risk and liquidity risk. Based on the framework, eight hypotheses have been developed to test in this study.

Various researchers have used different types of methodologies to study the determinants of risk and return performance in the bond market in the past. Few of them have been outlined in this chapter. A statistical model has been developed based on the empirical evidences of study methods, conceptual model of this study and hypotheses. The present study employs well known statistical techniques of ordinary least squares (OLS) multiple regression model. Data have been collected from 224 global aggregate sukuk listed on stock exchanges. However, this study considers selected successful and active sukuk market for analysis. The sample has been designed on the basis of these selected markets. After data collection, all these analysis have been done with SPSS and Eviews software applications.

CHAPTER FIVE

DATA PRESENTATION, ANALYSES AND DISCUSSION OF FINDINGS

5.1 Introduction

Previous chapter dealt with methodological aspects of the study. This chapter focuses on data presentation and analysis. The first section of this chapter outlines the descriptive statistics, mean and standard deviations. Graphical analysis on the relationship between risk and return are also presented in this chapter. This chapter also deals with the results and discussion of findings. It outlines correlations which explain the relationship between variables. Followed by the correlation analysis data was screened to check the autocorrelation, multicollinearity and heteroscedasticity. Then regressions are conducted. This study analyses about regression that covers model summary, ANOVA, and coefficient. Descriptive, correlations and regression analysis are done to test the impact of risk on sukuk return on the basis of global sukuk structure, maturity sukuk structure, rating sukuk structure, global sectorial sukuk structure, specific sectorial sukuk structure, GCC sectorial sukuk structure and selected country sukuk structure on the basis of two main data streams Dow Jones (DJ) sukuk index and Nasdaq Dubai sukuk index. Thus, altogether, 21 sukuk indices were derived in meeting the objectives of the study as dependent variables. The multivariate regression analyses were done separately for each of these dependent variables. Separate analyses for each sukuk index instead of overall analyses are executed in order to unveil the risk factors underlying the specific type of sukuk. Risk factors are considered as independent variables.

5.2 Descriptive Statistics of the Variables

This study first presents descriptive analyses which have been conducted using descriptive statistics mean and standard deviation for dependent variables into two main data stream. Dow Jones sukuk index covers global based index, maturity based index and rating based index. Nasdaq Dubai sukuk index incorporates a global sectorial based index, GCC sectorial based index, specific market based index and selected country based index. Descriptive analysis of independent variables are also presented in this section.

5.2.1 Descriptive statistics of the dependent variables

As separate analyses were done on each of the indices, in this study the dependent variables consist of 9 sukuk returns derive from Dow Jones sukuk index and 12 sukuk returns derived from Nasdaq Dubai sukuk index. Their descriptive statistics are presented in Table 5.1 and Table 5.2.

Table 5.1
Descriptive Analysis for Dow Jones Sukuk Return as Dependent Variables

Dow Jones Sukuk Return	Dependent variable	Mean	Standard Deviation	Minimum	Maximum
Global Basis	ΔGPRsRf	0.1250	0.0210	-0.0750	0.1622
Maturity Basis	ΔM3TRsRf	0.1204	0.0205	-0.0810	0.1538
	ΔM5TRsRf	0.1144	0.0188	-0.0840	0.1456
	ΔM7TRsRf	0.1136	0.0195	-0.0811	0.1456
	ΔM10TRsRf	0.1254	0.0211	-0.0754	0.1622
Rating Basis	ΔR3ARsRf	0.1145	0.0189	-0.0818	0.1456
	ΔR2ARsRf	0.1128	0.0138	-0.0852	0.1375
	ΔR1ARsRf	0.1122	0.0145	-0.0872	0.1375
	ΔR3BRsRf	0.1236	0.0232	-0.0742	0.1622

Number of observations=108
Source: Analysis output

Table 5.1 shows that the mean, standard deviation, minimum value and the maximum values of sukuk return for ΔGPRsRf are 0.1250, 0.0210, -0.0750 and 0.1622 respectively. Table 5.1 also shows the mean values for ΔM3TRsRf, ΔM5TRsRf, ΔM7TRsRf and ΔM10TRsRf are 0.1204, 0.1144, 0.1136 and 0.1254 respectively. This refers to that average sukuk return for ΔM3TRsRf, ΔM5TRsRf, ΔM7TRsRf and ΔM10TRsRf values vary between 0.1136 and 0.1254. They have the range of standard deviation between 0.0188 and 0.0211. It is also shown that the mean values for ΔR3ARsRf, ΔR2ARsRf, ΔR1ARsRf and ΔR3BRsRf are 0.1145, 0.1128, 0.1122 and 0.1236 respectively. They have the range of standard deviation between 0.0138 and 0.0232.

Table 5.2
Descriptive Analysis for Nasdaq Dubai Sukuk Return as Dependent Variable

Nasdaq DubaiSukuk Return	Dependent variable	Mean	Standard Deviation	Minimum	Maximum
Global Sectorial	ΔSKBIRf	0.1248	0.0216	-0.0714	0.1622
	ΔSUSIRf	0.1139	0.0193	-0.0805	0.1456
	ΔSUCIRf	0.1251	0.0211	-0.0750	0.1622
	ΔSUFIRf	0.1124	0.0142	-0.0857	0.1375
Specific Sectorial	ΔHASIRf	0.1200	0.0211	-0.0843	0.1538
	ΔSKIXRf	0.1123	0.0143	-0.0889	0.1375
GCC Sectorial	ΔGSKIRf	0.1237	0.0231	-0.0741	0.1622
	ΔGSKCRf	0.1247	0.0217	-0.0754	0.1622
	ΔGSKFRf	0.1123	0.0144	-0.0853	0.1375
Country Wise	ΔAESIRf	0.1239	0.0224	-0.0756	0.1622
	ΔBHSIRf	0.1241	0.0224	-0.0778	0.1622
	ΔMYSIRf	0.1133	0.0199	-0.0891	0.1456

Number of obervations=108
Source: Analysis output

As for the Nasdaq Dubai indices, as presented in Table 5.2, the mean values for ΔSKBIRf, ΔSUSIRf, ΔSUCIRf and ΔSUFIRf are 0.1248, 0.1139, 0.1251 and 0.1124

respectively, with the range of standard deviation between 0.0142 and 0.0216. Table 5.2 also shows that the mean values of ΔHASIRf and ΔSKIXRf of specific sectorial sukuk returns are 0.1200 and 0.1123 respectively, with the standard deviation of 0.0211and 0.0143. The mean values of ΔGSKIRf, ΔGSKCRf and ΔGSKFRf of GCC sectorial sukuk returns are 0.1237, 0.1247 and 0.1123 respectively. This implies that average sukuk returns vary between 0.1123 and 0.1247. They have the range of standard deviation between 0.0144 and 0.0231. This refers to that there is a higher variation among these variables. It also presents the mean values of ΔAESIRf, ΔBHSIRf and ΔMYSIRf are 0.1239, 0.1241 and 0.1133 respectively. This refers to that average sukuk return for ΔAESIRf, ΔBHSIRf and ΔMYSIRf values vary between 0.1133 and 0.1241. They have the range of standard deviation between 0.0199 and 0.0224. This also refers to that there is a higher variation among these variables.

Based on the above descriptive analysis, it is possible to conclude that over the period from 2005 to 2013, the average returns of sukuk have shown a considerable degree of variation.

5.2.2 Descriptive statistics of the independent variables

The Table 5.3 presents results of the descriptive analyses of the independent variables. These independent variables are the risk factors in the sukuk market and they are categorized into four, namely market risks, operational risks, credit risks and liquidity risks as suggested by the literature. Market risk consists of interest rate risk, inflation rate risk and dollar rate risk. Consumer confident rate risk and Shari'ah compliance risk are sub components of operational risks. Credit risks cover maturity risk and credit risk. A liquidity risk includes reinvestment rate risk.

Table 5.3
Descriptive Analysis for the Independent Variables

Risk Factor	Independent variable	Mean	Std. Deviation	Minimum	Maximum
Market Risk	ΔIRD	0.0431	0.0111	-0.0118	0.0564
	ΔCPI	0.1089	0.0059	-0.0989	0.1200
	ΔDOR	0.0819	0.0046	-0.0721	0.0927
Operational Risk	ΔCCI	0.0985	0.0096	-0.0749	0.1140
	ΔHQR	0.1096	0.0078	-0.0800	0.1214
Credit Risk	ΔMPR	0.0965	0.0128	-0.0500	0.1170
	ΔSMB	0.1198	0.0142	-0.0989	0.1444
liquidity Risk	ΔRIR	0.1077	0.0117	-0.0705	0.1241

Number of observations=108
Source: Analysis output

Table 5.3 presents mean values for ΔIRD, ΔCPI, ΔDOR, ΔCCI, ΔHQR, ΔMPR, ΔSMB, and ΔRIR are 0.0431, 0.1089, 0.0819, 0.0985, 0.1096, 0.0965, 0.1198 and 0.1077 respectively. This refers to that average sukuk return for these variables vary between 0.0431 and 0.1198. They have the standard deviation between 0.0046 and 0.0142.

5.3 Graphical Presentation of the Relationship between Risk Factor and Sukuk Return

This study also presents the relationship between independent variable and dependent variables graphically using line charts. Charts are drawn to explain the relationship between dependent variability of sukuk return which represent a global sukuk market and its related risk factors. These graphical presentations are prepared based on two main data stream of Dow Jones sukuk index and Nasdaq Dubai sukuk index (see Appendix C).

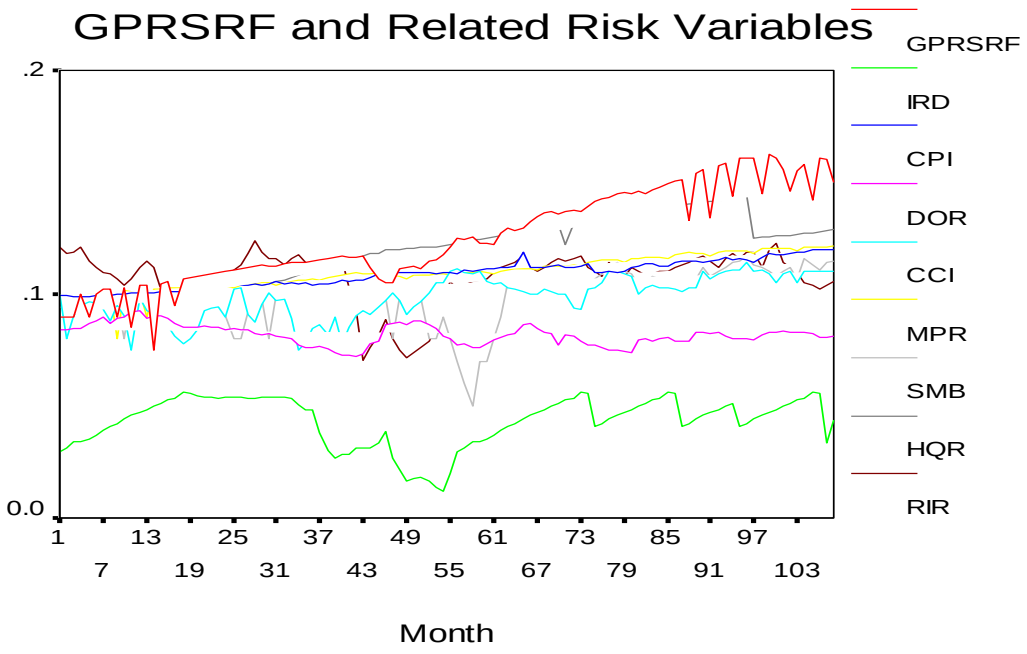

Figure 5.1
Fluctuation between Dow Jones Price Sukuk Return (GPRSRF) and its Related Risks
Source: Analysis output

The Figure 5.1 presents the fluctuation between Dow Jones price sukuk return (GPRSRF) and its related risk factors. Variation and fluctuation in the dependent variables with the change in each of the independent variables - interest rate risk, inflation risk, dollar rate risk, consumer confidence rate, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk are presented using above line charts.

The Figure 5.2 presents the fluctuation between Nasdaq Dubai global sukuk return (SKBIRF) and its related risk factors. Following line charts show the variation and fluctuation in the dependent variables with the change in each of the independent variables - interest rate risk, inflation risk, dollar rate risk, consumer confidence rate, maturity risk, credit risk, Shari'ah compliance risk, and liquidity risk.

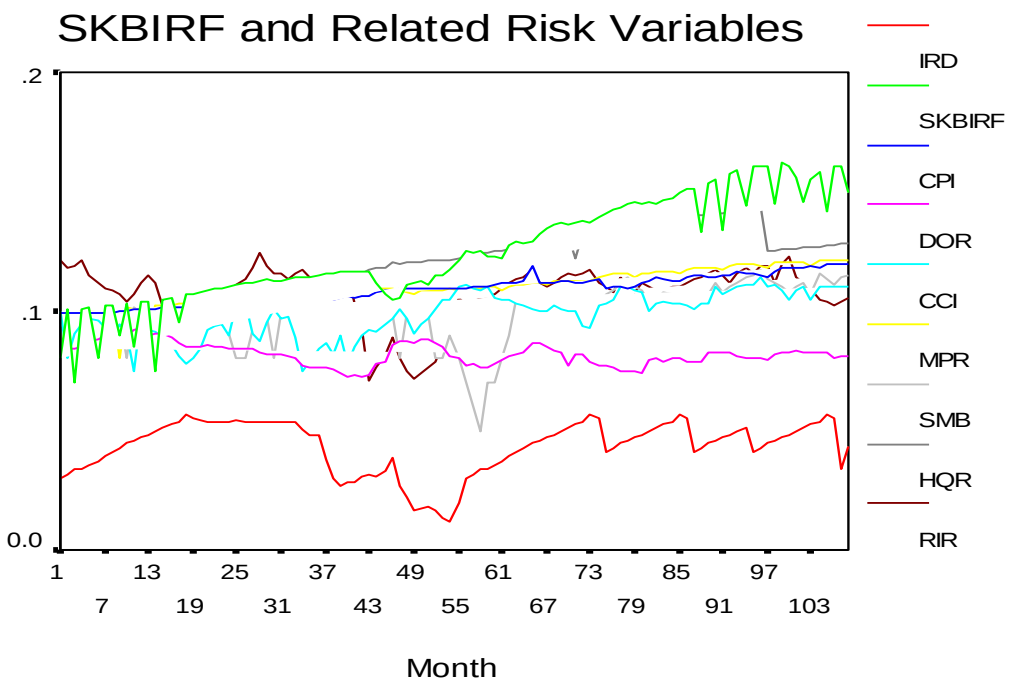

Figure 5.2
Fluctuation between Nasdaq Dubai Global Sukuk Return (SKBIRF) and Its Related Risks
Source: Analysis output

Impact of eight different types of independent variables on 21 dependent variables is also presented with a line chart separately (see appendix B for these figures). The patterns of all figures have shown a considerable fluctuation. This implies that there is a relationship between independent variables and dependent variables. As such, it is felt important to do a further correlation and regression analysis to test the relationship between independent variables and dependent variables.

5.4 Correlation Analyses

Previous section analyzed the descriptive analysis along with the graphical presentations. Following this, correlations are carried out to know the strength of association between sukuk returns and its related risks in support of the results of the descriptive analysis and graphical presentations. There are two bases for analyzing

correlation (see Appendix C). The first base was between Dow Jones sukuk returns and risk variables. The second base was between Nasdaq Dubai sukuk returns and risk variables**.**

Three types of categorization are presented in Table 5.4. For the first instance, values of correlation between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence rate risk, maturity risk, credit risk, Shari'ah compliance risk, liquidity risk and DJ price sukuk return varies from -0.437 to 0.896. The second type of maturity based Dow Jones sukuk returns and risk variables are analyzed on the basis of four maturity periods such as 1 to 3 years, 3 to 5 years, 5 to 7 years and 7 to 10 years. Values of correlation between return of DJM3T sukuk and interest rate, inflation rate risk, dollar rate risk, consumer confidence rate risk, maturity risk, credit risk Shari'ah compliance risk, and liquidity risk range between -0.250 and 0.745. In case of DJM5T sukuk, those between the return of DJ sukuk and other independents stated above range between -0.266 and 0.725. Pearson correlation values of DJM7T sukuk vary between -0.300 and 0.755. In case of DJM10T sukuk, correlation values of interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, credit risk, Shari'ah compliance riskand liquidity risk range between -0.424 and 0.873. The DJM10T sukuk return has shown association than other maturity periods.

The third type is the rating based Dow Jones sukuk returns and risk variables that have four categories. They are Dow Jones AAA rating, Dow Jones AA rating, Dow Jones A rating and Dow Jones BBB rating. Table 5.4 shows the correlation values for DJR3A sukuk returns and independent variables were between -0.247 and 0.704.

Table 5.4

Correlation between Dow Jones Sukuk Returns and Risk Variables

	ΔGPRSRF	ΔM3TRSRF	ΔM5TRSRF	ΔM7TRSRF	ΔM10TRSF	ΔR3ASRF	ΔR2ASRF	ΔR1ASRF	ΔR3BSRF	ΔIRD	ΔCPI	ΔDOR	ΔCCI	ΔMPR	ΔSMB	ΔHQR	ΔRIR
ΔGPRSRF	1																
ΔM3TRSRF	.771**	1															
ΔM5TRSRF	.813**	.715**	1														
ΔM7TRSRF	.831**	.734**	.984**	1													
ΔM10TRSF	.980**	.763**	.776**	.800**	1												
ΔR3ASRF	.795**	.700**	.984**	.979**	.763**	1											
ΔR2ASRF	.834**	.763**	.818**	.831**	.793**	.820**	1										
ΔR1ASRF	.853**	.764**	.790**	.796**	.830**	.765**	.936**	1									
ΔR3BSRF	.968**	.780**	.760**	.792**	.955**	.736**	.818**	.832**	1								
ΔIRD	.260**	.255**	.380**	.364**	.267**	.372**	.212*	.238*	.209*	1							
ΔCPI	.896**	.734**	.725**	.755**	.872**	.704**	.789**	.819**	.889**	.084	1						
ΔDOR	-.437**	-.250**	-.266**	-.300**	-.424**	-.247*	-.280**	-.316**	-.452**	.064	-.335**	1					
ΔCCI	.706**	.581**	.608**	.633**	.700**	.618**	.673**	.654**	.665**	-.014	.734**	-.191*	1				
ΔMPR	.884**	.745**	.716**	.754**	.873**	.695**	.773**	.816**	.890**	.104	.901**	-.451**	.658**	1			
ΔSMB	.604**	.563**	.598**	.597**	.602**	.595**	.628**	.595**	.600**	.307**	.526**	.003	.406**	.540**	1		
ΔHQR	.865**	.655**	.669**	.698**	.840**	.650**	.730**	.755**	.866**	.021	.873**	-.465**	.698**	.854**	.509**	1	
ΔRIR	.254**	.237*	.403**	.384**	.257**	.403**	.262**	.210*	.217*	.555**	.047	-.138	.118	.090	.240*	.060	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Second, correlation values of DJR2A sukuk range between -0.280 and 0.789. Third, range of correlation values for DJR1A sukuk differs between -0.316 and 0.819. Fourth, DJR3B sukuk has the correlation values that range between -0.452 and 0.890. The above analyses data were based on a Dow Jones sukuk index. The succeeding data that involve NASDAQ Dubai sukuk index are analyzed using correlation values. Table 5.5 presents the correlation between Nasdaq Dubai sukuk returns and risk variables.

There are four categories. The first category covers HSBC/ Nasdaq Dubai US Dollar sukuk index SKBI (global), HSBC/ NASDAQ Dubai sovereign US Dollar sukuk index SUSI (sovereign), HSBC/ NASDAQ Dubai corporate US Dollar sukuk index SUCI (corporate) and NASDAQ Dubai financial services US Dollar sukuk index SUFI (financial). SKBI (global) has the correlation values of between -0.436 and 0.891. SUSI (sovereign) has the correlation values of between -0.281 and 0.738. The correlation value of SUCI (corporate) varies between -0.440 to 0.0891. Correlation values of total returns of SUFI (financial) and its independent variables vary between -0.312 and 0.811. The second category describes Nasdaq Dubai that groups sukuk market on the basis of active and popular sukuk market which is further categorized into two, such as HSBC/ NASDAQ Dubai Amanah US Dollar sukuk index HASI (HSBC Amanah) and HSBC/ Nasdaq Dubai US Dollar Nasdaq Dubai Listed sukuk index SKIX (Dubai Listed). Correlation values for variables HASI (HSBC Amanah) vary between -0.263 and 0.749. In case of returns of SKIX (Dubai Listed), correlation values vary between -0.312 and 0.812.

Table 5.5

Correlation between Nasdaq Dubai Sukuk Returns and Risk Variables

	ΔSKBIRF	ΔSUSIRF	ΔSUCIRF	ΔSUFIRF	ΔHASIRF	ΔSKIKRF	ΔGSKIRF	ΔGSKCRF	ΔGSKFRF	ΔAESIRF	ΔBHSIRF	ΔMYSIRF	ΔIRD	ΔCPI	ΔDOR	ΔCCI	ΔMPR	ΔSMB	ΔHQR	ΔRIR
ΔSKBIRF	1																			
ΔSUSIRF	.800**	1																		
ΔSUCIRF	.995**	.811**	1																	
ΔSUFIRF	.836**	.812**	.841**	1																
ΔHASIRF	.769**	.708**	.767**	.759**	1															
ΔSKIKRF	.839**	.811**	.841**	.999**	.762**	1														
ΔGSKIRF	.969**	.784**	.966**	.812**	.788**	.815**	1													
ΔGSKCRF	.994**	.798**	.991**	.833**	.780**	.835**	.972**	1												
ΔGSKFRF	.840**	.809**	.842**	.999**	.769**	.999**	.822**	.839**	1											
ΔAESIRF	.973**	.788**	.971**	.817**	.820**	.820**	.950**	.979**	.823**	1										
ΔBHSIRF	.980**	.776**	.984**	.831**	.781**	.831**	.975**	.979**	.835**	.958**	1									
ΔMYSIRF	.815**	.988**	.822**	.819**	.737**	.820**	.813**	.819**	.822**	.807**	.804**	1								
ΔIRD	.261**	.384**	.253**	.215*	.258**	.218*	.239*	.255**	.213*	.293**	.215*	.367**	1							
ΔCPI	.891**	.738**	.891**	.811**	.743**	.812**	.880**	.893**	.815**	.864**	.892**	.765**	.084	1						
ΔDOR	-.436**	-.281**	-.440**	-.312**	-.263**	-.312**	-.404**	-.448**	-.317**	-.412**	-.453**	-.314**	.064	-.335**	1					
ΔCCI	.686**	.617**	.701**	.660**	.572**	.657**	.685**	.687**	.660**	.683**	.680**	.627**	-.014	.734**	-.191*	1				
ΔMPR	.877**	.725**	.879**	.810**	.749**	.811**	.876**	.877**	.820**	.852**	.887**	.762**	.104	.901**	-.451**	.658**	1			
ΔSMB	.591**	.587**	.603**	.609**	.561**	.607**	.599**	.599**	.609**	.616**	.606**	.588**	.307**	.526**	.003	.406**	.540**	1		
ΔHQR	.859**	.680**	.861**	.750**	.663**	.751**	.851**	.861**	.755**	.832**	.868**	.707**	.021	.873**	-.465**	.698**	.854**	.509**	1	
ΔRIR	.239*	.382**	.259**	.228*	.224*	.224*	.226*	.245*	.224*	.257**	.234*	.371**	.555**	.047	-.138	.118	.090	.240*	.060	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The third group covers GCC sectorial Nasdaq Dubai that is categorized into three HSBC/ Nasdaq Dubai GCC US Dollar sukuk index GSKI-GCC, HSBC/ Nasdaq Dubai GCC corporate US Dollar sukuk index GSKC – GCC corporate and HSBC/ Nasdaq Dubai GCC financial services US Dollar sukuk index GSKF–GCC financial. Correlation for GSKI–GCC varies between -0.404 and 0.880. GSKC–GCC corporate has the correlation values of between -0.448 and 0.893. Correlation values of total returns of GSKF–GCC financial and its independents vary between -0.317 and 0.820.

The last category is the selected countries Nasdaq Dubai, namely, United Arab Emirates (AESI), Kingdom of Bahrain (BHSI) and Malaysia (MYSI). Correlation values for the AESI range between -0.412 and 0.864. Correlation values for BHSI vary between -0.453 and 0.892. Correlation values for MYSI for all variables range between-0.314 and 0.765.

According to Table 5.4 and 5.5, correlation values proved the strengths of the association between Dow Jones and Nasdaq Dubai sukuk returns and their risk variables. Almost all the independent variables have strengths of association with sukuk return. Followed by the correlation analyses, next section outlines the regressions for variables. Therefore, regressions are conducted with F and t statistics for testing the relationships between variables. Then, mechanisms for reaching research objectives are also outlined along with regression analyses.

5.5 Regression Analyses

Data were screened by checking for normality, linearity, multi-collinearity, auto-correlation and heteroscedasticity. Test of Durbin Watson was used to test the auto-correlation, TOL and VIF are used to check multicollinearity. According to DurbinWatson, the value should be approximately 2. When such value appears in the

results it means there is no autocorrelation. The value of TOL ranges between 0 to 1 and VIF should be below 10 to ensure there is no multicollinearity.

OLS makes the assumption that is the variance of the error term is constant. If the error terms, do not have constant variance, they are said to be heteroscedastic. This means that OLS standard errors of the estimates are incorrect. Therefore, statistical inference is invalid. Detecting heteroscedasticity is important at this point. For this purpose a formal White heteroscedasticity test should be used to conclusively prove the existence and structure of heteroscedasticity. The results of this residual analysis should have a p value of more than 0.05 to ensure that the variance of the residual is constant. That is the absence of heteroscedasticity.

This study categorizes the sukuk market into two parts as a Dow Jones sukuk index and Nasdaq sukuk index. The Dow Jones sukuk index covers global index, maturity based index and rating based index. Nasdaq sukuk index incorporates global sectorial basis, GCC sectorial basis, specific market basis and selected country basis. On the basis of these categorizations, this study analyses about regression that covers model summary, ANOVA, and coefficient. Model summary outlines about R, R square, adjusted R square, Standard error of the estimate and Durbin Watson abbreviated as "d". Similarly, ANOVA table reveals sum of squares, df, mean square, F value and Significant value. Likewise, coefficient table discloses beta, standard error, t value, significant value, TOL and VIF. These results are collectively presented in the OLS regression results table (see Appendix B).

5.5.1 Regression Analysis of the Overall Sukuk Market

In this section the findings on the regression between price sukuk return and selected risk factors are discussed.

Data were screened to test the auto correlation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 1.988, which indicates no autocorrelation problem.To test the multicollinearity TOL and VIF were used. The TOL varies between 0.123 and 0.600 while VIF varies between 1.668and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.932 which is more than 0.05. This ensures that the variance of the residual is constant, which means there is no heteroscedasticity issue in the data.

Table 5.6
OLS Regression Results for DJ Price Sukuk Returns and Its Independents

	Coefficients				Multicollinearity	
Model	Beta	Std. Error	t	Sig.	TOL	VIF
Constant	-.128	.025	-5.198	.000		
ΔIRD	.260	.074	3.508	.001	.597	1.675
ΔCPI	1.367	.303	4.517	.000	.123	8.139
ΔDOR	-.555	.186	-2.984	.004	.558	1.791
ΔCCI	.219	.104	2.101	.038	.402	2.485
ΔMPR	.462	.213	2.166	.033	.146	6.832
ΔSMB	.180	.068	2.658	.009	.540	1.851
ΔHQR	.280	.107	2.624	.010	.176	5.690
ΔRIR	.141	.070	2.011	.047	.600	1.668
R	.954					
R Square	.909					
Adjusted R Square	.902					
F	124.306			.000		

Number of Observation = 108; Durbin-Watson (d) = 1.988
Source: Analysis output

Values of the regression results of R, R square, and adjusted R square indicate that interest rate, inflation rate risk, dollar rate,consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk collectively explain 90% to 95% of the variation on sukuk return. Unexplained variation ranges between 5% and 10%. Results of ANOVAshow a significance value of F statistics,which indicates that the model is significant at the 5 % level and the variables taken in this study explain

the model.Since the value of F statistics is less than 0.05, it is concluded that there is a significant relationship between interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJ price sukuk return. These results are presented in the Table 5.6.

For DJ price sukuk returns, while the DOR has a negative relationship with return IRD, CPI, CCI, MPR, SMB, HQR, RIR and have positive relationships. Of these positive relationships, CPI has the highest positive relationship. Contrarily, RIR has the least positive relationship. According to the results, impact of IRD and CPI are significant at the 1% level, and other all risks in this category are significant at the 5% level. As shown in the Table 5.6 coefficient values of dollar rate is negative, which means when the dollar rate rises rate of return declines or vice versa. Further, interest rate risk, inflation rate risk, dollar rate risk, credit risk and maturity risk influence the DJ price sukuk return significantly. Beta values of interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk, Shari'ah compliance risk, credit risk and liquidity risk differs. This is because sukuk are priced based on the risk premium required by investors above the risk free rate. Until recently, conventional risk free rates, such as US Treasury bill rate, Libor and US swap rates were being used to price sukuk. Recently, Thomson Reuters introduced Islamic inter bank benchmark rate (IIBR). It could potentially be an alternative to Libor for pricing sukuk in the near future. In the last decade, sukuk prices were mostly driven by global and regional events affecting the whole capital market.

Above findings indicate that various risk factors influence sukuk returns. To study these results in depth further analysis is to be done at different ways maturity basis,

rating basis, sectorial and countries sukuk markets. Analysis of these studies is presented in the next section.

5.5.2 Regression between Returns of DJM3T Sukuk and Its Related Independents

Data screening of auto correlation, multicollinearity and heteroscedasticity reveal that the value of Durbin-Watson (d) is 2.068. Thus, data explain no autocorrelation. The values of TOL vary between 0.123 and 0.600. Further, VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Residual analysis white heteroscedasticity test results indicate p value of 0.969 which is more than 0.05. This ensures that the variance of the residual is constant. This indicates absence of heteroscedasticity issue in the data.

Results from the value of R, R square, and adjusted R square indicate that the interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk, credit risk,Shari'ah compliance risk and liquidity risk explain 60% to 79% of the variation on the DJM3T sukuk return. Unexplained variation ranges between 21% and 40%. Results of ANOVAshow a value of F statistics, which indicates that the model is significant at the 5% level and the variables taken in this study explain the model. Results are presented in the Table 5.7. Alternative hypothesis is set as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJM3T sukuk return as an alternative hypothesis. Since the value of F statistics is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk

and DJM3T sukuk return. Table 5.7 shows the coefficient values for developing the model.

Table 5.7
OLS Regression Results for DJ M3T Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOLVIF	
Constant	-.165	.048	-3.435	.001		
ΔIRD	.171	.145	1.178	.241	.597	1.675
ΔCPI	1.022	.592	1.726	.088	.123	8.139
ΔDOR	.071	.364	.194	.847	.558	1.791
ΔCCI	.198	.204	.965	.337	.402	2.485
ΔMPR	1.053	.418	2.516	.013	.146	6.832
ΔSMB	.231	.132	1.747	.084	.540	1.851
ΔHQR	-.120	.209	-.566	.572	.176	5.690
ΔRIR	.172	.137	1.257	.212	.600	1.668
R	.799					
R Square	.638					
Adjusted R Square	.609					
F	21.838			.000		

Number of Observation= 108; Durbin-Watson (d)= 2.068
Source: Analysis output

For 3 year maturity period sukuk, HQR has a negative relationship with return. IRD, CPI, DOR, CCI, MPR, SMB and RIR have a positive relationship with return. Of these risks, CPI and SMB have the highest positive relationships. But, DOR has the least positive relationship with return. In case of HQR, it has a negative beta coefficient. When investors have lack of confidence in Shari'ah compliance risk there are chances for fluctuated return. It can be argued that beta values may vary between different types of risks and total DJM3T sukuk returns.

According to the results, MPR has a significant impact at the 5% level and CPI and SMB have significant impact at the 10% level on DJM3T sukuk return. Justifications could be made that more than 50% of investors prefer to invest in the short term sukuk that has a maturity period of 3 to 5 years. Despite the slight recovery in the

global market, investors prefer fixed rate so as to benefit from the return of short term. If it's a longer term, there is no guarantee for the return. So, investors prefer short term sukuk to avoid the credit risk (Thompson Reuters, 2013).

5.5.3 Regression between Total Returns of DJM5T Sukuk and Its Related Independents

Data were screened to test the auto correlation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 2.077. Thus, data explain no autocorrelation. The test of TOL shows a variation between 0.123 and 0.600. Further, VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.066 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

Results from the value of R, R square, and adjusted R square indicate that interest rate, inflation rate risk, dollar rate,consumer confidence risk, maturity risk,credit risk,Shari'ah compliance risk and liquidity risk explain 69% to 84% of the variation on the DJM5T sukuk return. Unexplained variation ranges between 16% and 31%. Results of ANOVA show that the value of F statistics is 31.504. This indicates that the model is significant and the variables taken in this study explain the model. This study sets alternative hypothesis as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk and DJM5T sukuk return as an alternative hypothesis. Since the value of F statistics is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate

risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJM5T sukuk return at the 5% of significant level. Table 5.8 presents these results.

Table 5.8
OLS Regression Results for DJ M5T Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.141	.039	-3.623	.000		
ΔIRD	.285	.117	2.432	.017	.597	1.675
ΔCPI	.990	.478	2.071	.041	.123	8.139
ΔDOR	-.066	.294	-.224	.823	.558	1.791
ΔCCI	.280	.165	1.699	.092	.402	2.485
ΔMPR	.420	.337	1.247	.215	.146	6.832
ΔSMB	.227	.107	2.125	.036	.540	1.851
ΔHQR	.057	.169	.337	.737	.176	5.690
ΔRIR	.354	.111	3.195	.002	.600	1.668
R	.847					
R Square	.718					
Adjusted R Square	.695					
F	31.504			.000		

Number of Observation=108; Durbin-Watson (d)=2.077
Source: Analysis output

For the 5 year maturity period, DOR has the negative relationship. While, IRD, CPI, CCI, MPR, SMB, HQR and RIR have the positive relationship with return. Of these positiveness, CPI has the highest positive relationship. The least positive relationships exist for HQR. Albeit, IRD, CPI, SMB and RIR significantly impact return at the 5% level and CCI significantly impact at the 10% level. Coefficient values show that interest rate risk, inflation rate risk, consumer confident risk, credit risk and liquidity risk have significantly impact DJM5T sukuk return. Beta values for different varieties of returns differ. These differences in beta values could be justified by indicating the following justifications. This table shows that the dollar rate represents the negative sign which means when the dollar rate rises rate of return declines or vice versa. When the dollar rate rises in other investment than sukuk return there are chances for

a reduced return in sukuk. In an expectation, preference mismatches the majority of the issuers expecting tenure to be between 5 and 10 years while the majority of the investors prefers their tenure to end within 3 to 5 year range. Investors prefer to invest in medium term sukuk to avoid interest rate risk, maturity risk, credit risk and liquidity risk. Most outstanding international sukuk are expected to mature within the next 3 to 5 years (Thompson Reuters, 2013).

5.5.4 Regression between Total Returns of DJM7T Sukuk and Its Related Independents

Initial data were screened to test the auto correlation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) 2.188 explains that data has no autocorrelation. TOL varies between 0.123 and 0.600. Further, VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.476 which is more than 0.05. This indicates that the variance of the residual is constant. Therefore, it is possible to say that there is no heteroscedasticity issue.

In terms of the results from the value of R, R square, and adjusted R square, 72% to 86% of the variation is explained by interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk on DJM7T sukuk return. Unexplained variation ranges between 14% and 28%. The model is significant at the 5% level and the variables taken in this study are appropriate. This is because the results of the ANOVA show value of F statistics is 36.909. The researcher set alternative hypothesis as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk

and DJM7T sukuk return as an alternative hypothesis. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJM7T sukuk return. Coefficient values show that maturity risk, interest rate risk, consumer price rate risk, and credit risk have significant impact on DJM7T sukuk returns. These results are presented in the Table 5.9.

Table 5.9
OLS Regression Results for DJ M7T Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.147	.038	-3.866	.000		
ΔIRD	.293	.115	2.557	.012	.597	1.675
ΔCPI	.965	.468	2.062	.042	.123	8.139
ΔDOR	-.162	.288	-.561	.576	.558	1.791
ΔCCI	.325	.161	2.010	.047	.402	2.485
ΔMPR	.584	.330	1.767	.080	.146	6.832
ΔSMB	.212	.105	2.027	.045	.540	1.851
ΔHQR	.036	.165	.216	.829	.176	5.690
ΔRIR	.330	.108	3.042	.003	.600	1.668
R	.865					
R Square	.749					
Adjusted R Square	.729					
F	36.909			.000		

Number of Observation =108; Durbin-Watson (d) =2.188
Source: Analysis output

Similar results have been observed for the 7 year maturity period as for the 5 year maturity period. But, IRD, CPI, CCI, SMB and RIR significantly impact return at the 5% level and MPR at the 10% level. The Table 5.9 shows that there is a negative value in the dollar rate that represents when the dollar rate rises rate of return declines or vice versa. The results also show that different risk variables have different beta values. Different beta values can be accounted by several reasons. Investors could face the future maturity risk and interest rate risk once the maturity period is longer.

Fixed income instruments are usually structured to see long term investors yet most sukuk are still trapped in the medium terms turnover of 5 to 10 years. Very few international sukuk serve the long term. This is because investors preferred to avoid maturity risk, inflation risk, interest rate risk, credit risk and liquidity risk.

5.5.5 Regression between Total Returns of DJM10T Sukuk and Its Related Independents

Data were screened to test the auto correlation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 1.948 which indicates that the data has no autocorrelation. The study revealed that TOL varies between 0.123 and 0.600. Further, VIF varies between 1.668 and 8.139. These values show that there is no multicollinearity problem. Residual analysis white heteroscedasticity test result has shown a p value of 0.999. Since it is more than 0.05 it is possible to say that there is no heteroscedasticity issue in the data. The researcher set alternative hypothesis as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk and DJM10T sukuk return as an alternative hypothesis. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJM10T sukuk return. Coefficient values show that maturity risk, interest rate risk, consumer price rate risk, and credit risk have significant impact on DJM10T sukuk returns. These results are presented in the Table 5.10.

Results from the value of R, R square, and adjusted R square indicate that the interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,

credit risk, Shari'ah compliance risk and liquidity risk explains 86% to 93% of the variation on the DJM10T sukuk return. Unexplained variation ranges between 7% and 14%. The results of the ANOVA test show that the value of F statistics is 88.635 which indicate that the model is significant at the 5 % level and the variables taken in this study explain the model. Table 5.10 shows these results, including coefficient values for the variables.

Table 5.10
OLS Regression Results for DJ M10T Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.121	.029	-4.215	.000		
ΔIRD	.280	.086	3.241	.002	.597	1.675
ΔCPI	1.101	.353	3.121	.002	.123	8.139
ΔDOR	-.538	.217	-2.480	.015	.558	1.791
ΔCCI	.290	.122	2.387	.019	.402	2.485
ΔMPR	.650	.249	2.613	.010	.146	6.832
ΔSMB	.191	.079	2.418	.017	.540	1.851
ΔHQR	.221	.124	1.772	.079	.176	5.690
ΔRIR	.127	.082	1.554	.123	.600	1.668
R	.937					
R Square	.877					
Adjusted R Square	.868					
F	88.635			.000		

Number of Observation=108; Durbin-Watson (d)=1.948
Source: Analysis output

Similar results have been observed for the 10 year maturity period as at 7 year maturity period. However, the impact of IRD, CPI, DOR, CCI, MPR and SMB are significant at the 5 % level and HQR is significant at the 10 % level. It could be observed that the longer period the more risk, the shorter period low risk. The results presented in the Table 5.10 reveal that the coefficient of dollar rate is negative, which means when the dollar rate rises rate of return declines or vice versa. In addition, interest rate risk, inflation rate risk, dollar rate risk, consumer confident risk, maturity risk, credit risk and Shari'ah compliance riskare shown to have significant impacts on

DJM10T sukuk return. The table also shows that the coefficient values differ from variable to variable. Conventional banks are the issuers of long term maturity period sukuk. They are the dominant parties who issue the longer term maturity issues, nearly 78 % of sukuk are issued by conventional banks (Thompson Reuters, 2013).

5.5.6 Summary Table for Regression Models of DJ Sukuk Return Covers Maturity Basis

Table 5.11
Regression Models of DJ Sukuk Return Covers Maturity Basis

Regression Model	R	R Square	Adjusted R Square	F	Sig.	d	TOL	VIF	Significant impact of risks
Regression between total returns of DJ M3T sukuk and its related independents	.799	.638	.609	21.838	.000	2.068	0.123 to 0.600	1.675 to 8.139	ΔMPR ΔCPI ΔSMB
Regression between total returns of DJ M5T sukuk and its related independents	.847	.718	.695	31.504	.000	2.077	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔSMB ΔCCI ΔRIR
Regression between total returns of DJ M7T sukuk and its related independents	.865	.749	.729	36.909	.000	2.188	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔCCI ΔSMB ΔMPR ΔRIR
Regression between total returns of DJ M10T sukuk and its related independents	.937	.877	.868	88.635	.000	1.948	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔDOR ΔCCI ΔMPR ΔSMB ΔHQR

Source: Analysis output

Table 5.11 summarizes four regression models. Four models explain 60% to 86 % of variation at 5% significance level. Dow Jones M3T sukuk return, Dow Jones M5T sukuk return, Dow Jones M7T sukuk return and Dow Jones M10T sukuk return are 60%, 69%, 72% and 86% exposed to risk respectively. Results indicate that, although

risks generally impact the sukuk returns, longer period of maturity based sukuk market i.e; Dow Jones M10T sukuk return is highly exposed to risk. Conversely lowest maturity period sukuk is less exposed to risk. As such, it is possible to conclude that the when the maturity period is decreasing the risk also decreasing. On the other hand, when the maturity period is increasing the risk also get increased in the sukuk structure.

5.5.7 Regression between Total Returns of DJR3A Sukuk and Its Related Independents

Data screening revealed that the value of Durbin-Watson (d) is 2.080. Therefore, it is possible to say that data explain no autocorrelation. Test of multicollinearity revealed that the value of TOL varies between0.123 and 0.600 and value of VIF varies between 1.668 and 8.139. These values imply that there is no multicollinearity. Residual analysis white heteroscedasticity test results reveal p value of 0.087 and it is more than 0.05. This proves that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

The values of R, R square and adjusted R square revealed that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 67% to 83% of the variation in sukuk return. Unexplained variation ranges between 17% and 23%. The ANOVA test shows that the value of F statistics is 28.428. This indicates that the model is significant at the 5% level and the variables taken in this study explain the model.

In this study, alternative hypothesis are set as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJR3A sukuk return as an alternative hypothesis. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk and DJR3A sukuk return. Results and coefficient values are presented in the Table 5.12.

Table 5.12
OLS Regression Results for DJ R3A Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.136	.041	-3.346	.001		
ΔIRD	.277	.122	2.259	.026	.597	1.675
ΔCPI	.840	.500	1.681	.096	.123	8.139
ΔDOR	-.046	.307	-.150	.881	.558	1.791
ΔCCI	.393	.172	2.281	.025	.402	2.485
ΔMPR	.420	.352	1.191	.237	.146	6.832
ΔSMB	.246	.112	2.207	.030	.540	1.851
ΔHQR	.034	.176	.195	.846	.176	5.690
ΔRIR	.355	.116	3.067	.003	.600	1.668
R	.835					
R Square	.697					
Adjusted R Square	.672					
F	28.428			.000		

Number of Observation=108; Durbin-Watson (d)=2.080
Source: Analysis output

For DJ R3A sukuk returns, DOR has a negative relationship to return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have a positive relationship with return. Whereas CPI has the highest positive relationship HQR has the lower relationship to return. Despite this relationship, the impact of IRD, CCI, SMB and RIR are significant at the 5% level and CPI is significant at the 10% level. The results presented in the Table 5.12 reveal that dollar rate is negative describing, when the dollar rate increases the rate of return

declines. This may be due to that there are investment opportunities for the investors rather than sukuk. Further, the coefficient values of variables show that interest rate risk, inflation rate risk, consumer confident risk, credit risk and liquidity risk have significant impact on DJR3A sukuk return.

Table 5.17 shows that values of coefficients vary in different degrees. Rationales for varying degrees of beta are that more than two third of the investors believe that rating should be compulsory, as the opinion of independent third party on the credit quality of sukuk will provide investors with an added measure of comfort. Sukuk rating is mandatory in Malaysia but not in the GCC. Rating of sukuk is important for their investment decision. Investors prefer high quality sukuk. Both issuers and investors consider rating to be more important for grade A and above issuances (Thompson Reuters, 2013).

5.5.8 Regression between Total Returns of DJR2A Sukuk and Its Related Independents

Data screening reveals that the value of Durbin-Watson (d) is 2.060 thus data explain no auto correlation. Results of both TOL and VIF vary between controllable ranges, i.e. TOL varies between 0.123 and 0.600. Further, VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.938 which is more than 0.05. This confirms that the variance of the residual is constant. That implies there is no heteroscedasticity issue in the data.

Regression analysis results show that value of R, R square, and adjusted R square indicate that the independent variables explain 71% to 85% of the variation on DJ

R2A sukuk return. Therefore, it is possible to conclude that interest rate risk, inflation rate risk, dollar rate risk,consumer confidence risk, maturity risk,credit risk,Shari'ah compliance risk and liquidity risk explain significant variation on the DJR2A sukuk return. Unexplained variation ranges between 15% and 29%. ANOVA results show that the value of F statistics is 34.279 that indicate that the model is significant at the 5% level and the variables taken in this study explain the model.

This study sets alternative hypothesis as that there is a relationship between interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk and DJR2A sukuk return as an alternative hypothesis. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk and DJR2A sukuk return. OLS regression results for DJR2A sukuk returns and its related independents are presented in the Table 5.13.

Table 5.13
OLS Regression Results for DJ R2A Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.073	.028	-2.646	.009		
ΔIRD	.024	.083	.292	.771	.597	1.675
ΔCPI	.805	.340	2.369	.020	.123	8.139
ΔDOR	-.077	.209	-.370	.712	.558	1.791
ΔCCI	.252	.117	2.152	.034	.402	2.485
ΔMPR	.339	.240	1.415	.160	.146	6.832
ΔSMB	.248	.076	3.263	.002	.540	1.851
ΔHQR	.001	.120	.005	.996	.176	5.690
ΔRIR	.163	.079	2.068	.041	.600	1.668
R	.857					
R Square	.735					
Adjusted R Square	.713					
F	34.279			.000		

Number of Observation=108; Durbin-Watson (d)=2.060
Source: Analysis output

Similar results are found in DJR2A sukuk returns as at DJR3A. In terms of this type, the impact of CPI, CCI, SMB and RIR are significant at the 5% level. The results presented in the Table 5.13 reveal that dollar rate is negative describing when the dollar rate increases the rate of return declines. This may be due to that there are investment opportunities for the investors rather than sukuk. Further, the regression results show that inflation rate risk, consumer confident risk, credit risk and liquidity risk impact the DJR2A sukuk return significantly. If looking at the results of beta coefficient values differ among variables. It should be mentioned that a number of the issuers whom agree that sukuk list should be slightly edges outnumber those who do not agree with the listing. Most lead issuers agreed that sukuk rating is important for investing in sukuk. It is further worthy to mention that according to Thompson Reuters finding (2013) out of 83% of outstanding Eurobonds investment grades, and sub investment grades add up to 51%.

5.5.9 Regression between Total Returns of DJR1A Sukuk and Its Related Independents

Initial data screening result found that the value of Durbin-Watson (d) is 2.133. Thus, data explain no auto correlation. TOL varies between 0.123 and 0.600. Further, VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.846 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

OLS results reveal that the value of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 73% to

86% of the variation on sukuk return. Unexplained variation ranges between 14% and 27%. Results of ANOVA show value of F statistics is 38.114 that indicate that the model is significant at 5% and the variables taken in this study explain the model. Alternative hypothesis are set as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJR1A sukuk return as an alternative hypothesis. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk and DJR1A sukuk return. OLS results are presented in Table 5.14.

Table 5.14
OLS Regression Results for DJ R1A Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.080	.028	-2.864	.005		
ΔIRD	.139	.084	1.657	.101	.597	1.675
ΔCPI	.827	.342	2.414	.018	.123	8.139
ΔDOR	-.109	.211	-.518	.606	.558	1.791
ΔCCI	.183	.118	1.546	.125	.402	2.485
ΔMPR	.567	.242	2.345	.021	.146	6.832
ΔSMB	.168	.077	2.200	.030	.540	1.851
ΔHQR	.013	.121	.111	.912	.176	5.690
ΔRIR	.064	.079	.807	.422	.600	1.668
R	.869					
R Square	.755					
Adjusted R Square	.735					
F	38.114			.000		

Number of Observation=108; Durbin-Watson (d)= 2.133
Source: Analysis output

Similar results are found in DJR1A sukuk returns as at DJR3A. Likewise, whereas the impact of CPI, MPR and SMB are significant at the 5% level other types are not significant.The results presented in the Table 5.14 reveal that dollar rate is negative

describing when the dollar rate increases the rate of return declines. This may be due to that there are investment opportunities for the investors rather than sukuk. Further, according to the results inflation rate risk, maturity risk and credit risk influence DJR1A sukuk return significantly. Beta coefficient values vary between different degrees. There is an argument that 92% of investors prefer rated sukuk out of which 16% and above are rated A and above. 45 % of sukuk are in investment graded sukuk. 8% of the sukuk are in sub investment grade, but, 32 % of the sukuk are not rated (Thompson Reuters, 2013).

5.5.10 Regression between Total Returns of DJR3B Sukuk and Its Related Independents

Initial screening of data shows the value of Durbin-Watson (d) 2.152 confirms that data explain no auto correlation. The value of TOL varies between 0.123 and 0.600 and values of VIF varies between 1.668 and 8.139. These values confirm that there is no multicollinearity in the data. The residual analysis white heteroscedasticity test results reveal a p value of 0.470. As this is more than 0.05 it is possible to confirm that the variance of the residual is constant. That implies there is no heteroscedasticity issue in the data.

Regression results reveal that the value of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain to 87% to 94% of the variation on DJR3B sukuk return. Unexplained variation ranges between 6% and13%. The value of F statistics is 98.500 in the ANOVA test indicates that the model is significant at the 5 % level and the variables taken in this study explain the model. There is a relationship between interest rate, inflation rate risk, dollar rate,

consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJR3B sukuk return as an alternative hypothesis.

The results presented in the Table 5.15 reveal that dollar rate is negative describing when the dollar rate increases the rate of return declines. This may be due to that there are investment opportunities for the investors rather than sukuk. Further, since value is less than 0.05, the alternative hypothesis accepted. This refers to that there is relationship between interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and DJR3B sukuk return. Table 4.1 presents the OLS regression results.

Table 5.15
OLS Regression Results for DJ R3B Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.149	.030	-4.950	.000		
ΔIRD	.159	.091	1.752	.083	.597	1.675
ΔCPI	1.463	.370	3.954	.000	.123	8.139
ΔDOR	-.602	.228	-2.644	.010	.558	1.791
ΔCCI	.025	.128	.198	.843	.402	2.485
ΔMPR	.678	.261	2.598	.011	.146	6.832
ΔSMB	.228	.083	2.758	.007	.540	1.851
ΔHQR	.339	.131	2.595	.011	.176	5.690
ΔRIR	.150	.086	1.753	.083	.600	1.668
R	.943					
R Square	.888					
Adjusted R Square	.879					
F	98.500			.000		

Number of Observation=108; Durbin-Watson (d)=2.152
Source: Analysis output

For DJR3B sukuk return, the impact of CPI is significant at the 1 % level, DOR, MPR, SMB and HQR are significant at the 5 % level and IRD and RIR are significant at the 10 % level. The results of the regression imply that interest rate risk, inflation rate risk, dollar rate risk, maturity rate risk, credit risk, Shari'ah compliance risk and

liquidity risk influence DJ R3B sukuk return significantly. According to Table 4.15 beta values vary between variables so that they influence in varying degrees. This could be due to out of which, 68% of sukuk investors prefer that sukuk have to be rated in BBB and above. Generally, sukuk investors agreed that sukuk should be rated above this particular level to avoid the credit (Thompson Reuters, 2013).

5.5.11 Summary Table for Regression Modelsof DJ Sukuk Return Covers Rating Basis

Table 5.16
Regression Models of DJ Sukuk Return Covers Rating Basis

Regression Model	R	R Square	Adjusted R Square	F	Sig.	d	TOL	VIF	Significant impact of risks
Regression between total returns of DJ R3A sukuk and its related independents	.835	.697	.672	28.428	.000	2.080	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔCCI ΔSMB ΔRIR
Regression between total returns of DJ R2A sukuk and its related independents	.857	.735	.713	34.279	.000	2.060	0.123 to 0.600	1.675 to 8.139	ΔCPI ΔCCI ΔSMB ΔRIR
Regression between total returns of DJR1A sukuk and its related independents	.869	.755	.735	38.114	.000	2.133	0.123 to 0.600	1.675 to 8.139	ΔCPI ΔMPR ΔSMB
Regression between total returns of DJR3B sukuk and its related independents	.943	.888	.879	98.500	.000	2.152	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔDOR ΔMPR ΔSMB ΔHQR ΔRIR

Source: Analysis output

Table 5.16 summarizes four regression models. Four models explain 67% to 87 % of variation at 5% significance level. Risk exposure on Dow Jones R3A sukuk return is

67%, risk exposure on Dow Jones R2A sukukreturn is 71%, risk impact on Dow Jones R1A sukuk return is 73% and risk influence on Dow Jones R3B sukuk return is 87%.

The results indicate that impact of risk is very high on Dow Jones R3B sukuk return. A similar risk impact has been observed on Dow Jones R2A sukuk return and Dow Jones R1A sukuk return in the sukuk structure. However, the impact of risk on Dow Jones R3A sukuk return is very less compared with other three categories of the rating sukuk return.

5.5.12 Regression between Total Returns of SKBI (Global) and Its Related Independents

Data were screened to test the auto correlation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 2.170 imply that data explain no auto correlation. The value of TOL varies between 0.123 and 0.600 and values of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.796 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

The results from the value of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 88% to 94% of the variation on sukuk return. Unexplained variation ranges between 6% and 12%. ANOVA results reveal that value of F statistics is 102.527 which indicates that the model is significant at the 5% level and the variables taken in this study explain the

model. Alternative hypothesis are set as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SKBI (global) sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SKBI (global) sukuk return. Table 5.17 shows the OLS regression results.

Table5.17
OLS Regression Results for SKBI (Global) Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.133	.028	-4.811	.000		
ΔIRD	.294	.083	3.542	.001	.597	1.675
ΔCPI	1.505	.339	4.437	.000	.123	8.139
ΔDOR	-.568	.209	-2.723	.008	.558	1.791
ΔCCI	.157	.117	1.338	.184	.402	2.485
ΔMPR	.436	.239	1.822	.071	.146	6.832
ΔSMB	.160	.076	2.118	.037	.540	1.851
ΔHQR	.305	.120	2.548	.012	.176	5.690
ΔRIR	.113	.079	1.443	.152	.600	1.668
R	.945					
R Square	.892					
Adjusted R Square	.884					
F	102.527			.000		

Number of Observation=108; Durbin-Watson (d) =2.170
Source: Analysis output

For SKBI (global) sukuk returns, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have a positive relationship with return. Of these positive relationships, CPI occupies the highest positiveness with the return. RIR has the least positiveness with the return. However, the impact of IRD and CPI are significant at the 1% level, while, DOR, SMB and HQR are significant at the 5% level and MPR is significant at the 10% level. According to the regression results with

interest rate risk, inflation rate risk, dollar rate risk, maturity risk, credit risk and Shari'ah compliance risk impact SKBI (global) sukuk return significantly. The coefficients of variables vary among them. In the last decade, sukuk prices were mostly driven by global and regional events affecting the whole capital market. Plunge in sukuk prices is in line with the drop in prices of all other assets affected by the global financial crisis. Due to this interest rate risk, credit risk and inflation risk influence the total return. Investors eventually found reputable names with good return, until the Nakeel default pushed prices down again. Prices recovered with the Abu Dhabi government bail out that slowly returned investors' confidence in Dubai (Thompson Reuters, 2013).

5.5.13 Regression between Total Returns of SUSI (Sovereign) and Its Related Independents

Data were screened for autocorrelation using Durbin-Watson (d) value which was found to be 2.139. This indicates data explain no autocorrelation. The further multicollinearity test was done. Results reveal that Value of TOL varies between 0.123 and 0.600 and values of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Since residual analysis white heteroscedasticity test results have a p value of 0.089 and it is more than 0.05 it is possible to say that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

Regression results from the value of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 70% to 85% of the variation in sukuk return. Unexplained variation ranges between 15% and

30%. The value of F statistics is in ANOVA is 32.438. This indicates that the model is significant at 5% and the variables taken in this study explain the model.

Alternative hypothesis is set such that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SUSI (sovereign) sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SUSI (sovereign) sukuk return. Table 5.18 shows the coefficient values for the variables.

Table 5.18
OLS Regression Results for SUSI (Sovereign) Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.139	.039	-3.518	.001		
ΔIRD	.349	.119	2.935	.004	.597	1.675
ΔCPI	1.093	.485	2.255	.026	.123	8.139
ΔDOR	-.154	.298	-.518	.606	.558	1.791
ΔCCI	.314	.167	1.879	.063	.402	2.485
ΔMPR	.372	.342	1.087	.280	.146	6.832
ΔSMB	.204	.108	1.879	.063	.540	1.851
ΔHQR	.062	.171	.363	.717	.176	5.690
ΔRIR	.301	.112	2.684	.009	.600	1.668
R	.851					
R Square	.724					
Adjusted R Square	.702					
F	32.438			.000		

Number of Observation=108 Durbin-Watson (d)=2.139
Source: Analysis output

According to the results, the impact of IRD, CPI, and RIR are significant at the 5% level and CCI and SMB are significant at the 10% level. Results show that interest rate risk, inflation rate risk, consumer confident risk, credit risk and liquidity risk

impact SUSI (sovereign) sukuk return significantly. The beta values vary among the variables. Most investors prefer the sovereign sukuk to avoid the credit risk. Sovereign became famous post Arab Spring. In a previous study carried by Thompson Reuters (2013), nearly 60 % of the investors prefer to invest in sovereign sukuk because investors prefer lower risk investment. The number of corporate sukuk issuances is higher than sovereign and quasi sovereign issuances. But, the value of corporate issuance is much lower than sovereign issuances. From the total global aggregate sukuk issues, 56% of issuances are sovereign remaining are quasi and corporate sovereigns. Government institutions have two third of market share despite 77% of market share during the last decade (Thompson Reuters, 2013).

5.5.14 Regression between Total Returns of SUCI (Corporate) and Its Related Independents

Data were screened for autocorrelation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 2.140. Thus, data explain no autocorrelation. TOL value varies between 0.123 and 0.600. Further, VIF value varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.896 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

The results from the value of R, R square and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 89% to 94% of the variation in sukuk return. Unexplained variation ranges between 06% and 11%. ANOVA results show that the value of F statistics is 112.782 which indicates that the

model is significant at the 5% level and the variables taken in this study explain the model.

Alternative hypothesis are set as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk and SUCI (corporate) sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SUCI (corporate) sukuk return. Table 5.19 shows the coefficient values for developing the model.

Table 5.19
OLS Regression Results for SUCI (Corporate) Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.127	.026	-4.920	.000		
ΔIRD	.233	.078	3.005	.003	.597	1.675
ΔCPI	1.417	.317	4.471	.000	.123	8.139
ΔDOR	-.585	.195	-3.001	.003	.558	1.791
ΔCCI	.204	.109	1.869	.065	.402	2.485
ΔMPR	.426	.224	1.906	.060	.146	6.832
ΔSMB	.190	.071	2.686	.008	.540	1.851
ΔHQR	.272	.112	2.436	.017	.176	5.690
ΔRIR	.163	.073	2.219	.029	.600	1.668
R	.949					
R Square	.901					
Adjusted R Square	.893					
F	112.782			.000		

Number of Observation=108; Durbin-Watson (d)=2.140
Source: Analysis output

Similar results are found in SUCI (corporate) sukuk returns as at SKBI (global). Anyway, the impact of CPI is significant at the 1% level, while, IRD, DOR, SMB, HQR and RIR are significant at the 5% level and CCI and MPR are significant at the

10% level. According to the results interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk impact SUCI (corporate) sukuk return significantly. Coefficient value varies due to the following reasons that most of corporate sectors in the financial sectors were down due to the financial crisis. For instance, corporate sectors cannot afford the expectation of the investors. Further, 29% of the sukuk are corporate sukuk issuances when compared with government sovereign sukuk. There is a risk in adopting Shari'ah compliance. So, the investors have a lack of confidence on Shari'ah compliance (Thompson Reuters, 2013).

5.5.15 Regression between Total Returns of SUFI (Financial) and Its Related Independents

Data were screened for autocorrelation, multicollinearity and heteroscedasticity. The value of Durbin-Watson (d) is 2.131. Thus, data explain no auto correlation. The value of TOL varies between 0.123 and 0.600. Further, the value of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.823 which is more than 0.05. This proves that the variance of the residual is constant. That denotes there is no heteroscedasticity issue in the data.

Results from the value of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 73% to 86% of the variation on sukuk return. Unexplained variation ranges between 14% and 27%. The value of F statistics in ANOVA is 37.098 which indicates that the model is significant at 5% and the variables taken in this study explain the model.

This study sets alternative hypothesis such that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SUFI (financial) sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and SUFI (financial) sukuk return. Table 5.20 presents OLS regression results for SUFI (financial) sukuk returns and its related independents.

Table5.20
OLS Regression Results for SUFI (Financial) Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.078	.028	-2.818	.006		
ΔIRD	.067	.083	.800	.425	.597	1.675
ΔCPI	.765	.340	2.252	.027	.123	8.139
ΔDOR	-.098	.209	-.467	.642	.558	1.791
ΔCCI	.193	.117	1.650	.102	.402	2.485
ΔMPR	.556	.240	2.319	.022	.146	6.832
ΔSMB	.202	.076	2.659	.009	.540	1.851
ΔHQR	.003	.120	.022	.982	.176	5.690
ΔRIR	.113	.079	1.441	.153	.600	1.668
R	.866					
R Square	.750					
Adjusted R Square	.730					
F	37.098			.000		

Number of Observation=108; Durbin-Watson (d) =2.131
Source: Analysis output

Despite this result, the impact of CPI, MPR and SMB are significant at the 5% level, the remaining risks are not significant. The results of the regression reveal that inflation rate risk, maturity risk and credit risk impact SUFI (financial) sukuk return significantly. Once observing the beta values as indicated in coefficient table, values vary in varying ranges. Thompson Reuters, 2013 report that 12.5% of the sukuk

market represents the financial sector. Nearly 300 issues account for the financial service sector. Most of the leading financial institutions and other banks such as Bank Negara Malaysia, CIMB, HSBC, Maybank, etc., issued and during the last decade, this was in boom. After the financial crisis, the financial sector has been affected a lot.

5.5.16 Summary Table for Regression Model of NASDAQ Sukuk Index Incorporates Global Sectorial Basis

Table 5.21
Regression Model of NASDAQ Sukuk Index Incorporates Global Sectorial Basis

Regression Model	R	R Square	Adjusted R Square	F	Sig.	d	TOL	VIF	Significant impact of risks
Regression between total returns of SKBI (Global) and its related independents	.945	.892	.884	102.527	.000	2.170	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔDOR ΔMPR ΔSMB ΔHQR
Regression between total returns of SUSI (Sovereign) and its related independents	.851	.724	.702	32.438	.000	2.139	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔCCI ΔSMB ΔRIR
Regression between total returns of SUCI (Corporate) and its related independents	.949	.901	.893	112.782	.000	2.140	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔDOR ΔCCI ΔMPR ΔSMB ΔHQR ΔRIR
Regression between total returns of SUFI (Financial) and its related independents	.866	.750	.730	37.098	.000	2.131	0.123 to 0.600	1.675 to 8.139	ΔCPI ΔMPR ΔSMB

Source: Analysis output

Table 5.21 summarizes four regression models. Four models explain 70% to 89 % of the variation.While risk exposure on global sukuk return is 88%, risk exposure on sovereign sukuk return is 70%. While risk exposure to corporate sukuk return is 89%

risk exposure to financial sukuk return is 73%. F statistics show that the models are significant at 5% and all the models are acceptable.

The results indicate that a sovereign sukuk return is very less exposed to risk compared with other sectors corporate sukuk and financial sukuk. Therefore, it is possible to conclude that sovereign sukuk return is minimally exposed to risk. It is also found that when compared with finance sector risk is high in the corporate sector. A summary of these comparisons is presented in the Table 5.21.

5.5.17 Regressionbetween Total Returns of HASI (HSBC Amanah) Sukuk and Its Related Independents

Test of autocorrelation, multicollinearity and heteroscedasticity were done to screen the data. The value of Durbin-Watson (d) is 2.098 which mean that data explain no auto correlation. TOL varies between 0.123 and 0.600. Further, VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.964 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

Regression results from the value of R, R square, and adjusted R square indicate that interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 61% to 80 % of the variation in sukuk return. Unexplained variation ranges between 20% and 39%. The value of F statistics in ANOVA test is 22.140 implies that this is a significant model at the 5% level.

An alternative hypothesis have been set for this study is that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and HASI (HSBC Amanah) sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and HASI (HSBC Amanah) sukuk return. Table 5.22 shows the coefficient values for developing the model.

Table 5.22
OLS Regression Results for HASI (HSBC Amanah) Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.166	.049	-3.371	.001		
ΔIRD	.205	.148	1.382	.170	.597	1.675
ΔCPI	1.193	.605	1.972	.051	.123	8.139
ΔDOR	-.010	.372	-.028	.978	.558	1.791
ΔCCI	.148	.209	.707	.481	.402	2.485
ΔMPR	.985	.427	2.306	.023	.146	6.832
ΔSMB	.237	.135	1.753	.083	.540	1.851
ΔHQR	-.103	.213	-.484	.629	.176	5.690
ΔRIR	.140	.140	.996	.322	.600	1.668
R	.801					
R Square	.641					
Adjusted R Square	.612					
F	22.140			.000		

Number of Observation=108; Durbin-Watson (d)=2.098
Source: Analysis output

For HASI (HSBC Amanah), DOR and HQR have the negative relationship with return. IRD, CPI, CCI, MPR, SMB and RIR have a positive relationship with return. While CPI has the highest positiveness RIR has the least positiveness. Since there is the impact of MPR are significant at the 5% level, CPI and SMB are significant at the 10% level. The other remaining risks are not significant. The results of the regression analysis reveal that inflation rate risk, maturity risk and credit risk impact

significantly. As shown in the Table 5.22, beta values of interest rate risk, inflation rate risk, dollar rate risk, consumer confidence rate risk, maturity risk, credit risk Shari'ah compliance risk and liquidity risk differs. This is because sukuk are priced based on the credit risk premium required by investors above the risk free rate. In this type of sukuk structure of Amanah HSBC adopted in the Middle East can differ considerably from those adopted in other region of South East Asia for several reasons. For example, the difference in the interpretation of Shari'ah among the Middle East and Asian scholars (Thompson Reuters, 2013).

5.5.18 Regression between Total Returns of SKIX (Dubai Listed) Sukuk and Its Related Independents

The value of Durbin-Watson (d) was found 2.118 in screening the data. Thus, data explain no autocorrelation. TOL value varies between 0.123 and 0.600. Further, VIF value varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.833 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

Regression analysis results of R, R square, and adjusted R square values indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 72% to 86% of the variation in sukuk return. Unexplained variation ranges between 14% and 28%. ANOVA test reveals that the value of F statistics is 37.024 which indicate this is a significant model at the 5% level. An alternative hypothesis have been set as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and

liquidity risk and SKIX (Dubai Listed) sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between and SKIX (Dubai Listed) sukuk return. Table 5.23 shows the coefficient values for developing the model.

Table 5.23
OLS Regression Results for SKIX (Dubai Listed) Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.079	.028	-2.847	.005		
ΔIRD	.077	.084	.921	.359	.597	1.675
ΔCPI	.778	.342	2.279	.025	.123	8.139
ΔDOR	-.092	.210	-.438	.662	.558	1.791
ΔCCI	.182	.118	1.545	.126	.402	2.485
ΔMPR	.561	.241	2.329	.022	.146	6.832
ΔSMB	.196	.076	2.571	.012	.540	1.851
ΔHQR	.009	.121	.074	.941	.176	5.690
ΔRIR	.105	.079	1.330	.187	.600	1.668
R	.866					
R Square	.749					
Adjusted R Square	.729					
F	37.024			.000		

Number of Observation=108; Durbin-Watson (d)=2.118
Source: Analysis output

For SKIX (Dubai Listed), DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have a positive relationship with return. Of these positive relationships, while CPI has the highest relationship with return HQR has the lowest relationship with return. However, the impact of CPI, MPR and SMB are significant at the 5% level. The coefficient values of variables indicate that inflation rate risk, maturity risk, and credit risk impact the SKIX (Dubai Listed) sukuk return significantly. Beta values for different varieties of risks vary in different degrees. There are negative and positive fluctuations in return. Listed sukuk are more liquid, tradable and attractive. Thompson Reuters (2013) report shows that only 25 % of the

global sukuk market share has been listed. Out of this, active market represents the Dubai listed sukuk. Thus, unlisted sukuk represent poor liquidity, poor market's ability are less attractive than the listed ones.

5.5.19 Summary Table for Regression Model of NasdaqSukuk Index Incorporates Specific Market Basis

Table 5.24
Regression Models of NASDAQ Sukuk Index Incorporates Specific Market Basis

Regression Model	R	R Square	Adjusted R Square	F	Sig.	d	TOL	VIF	Significant impact of risks
Regression between total returns of HASI (HSBC Amanah) and its related independents	.801	.641	.612	22.140	.000	2.098	0.123 to 0.600	1.675 to 8.139	ΔCPI ΔMPR ΔSMB
Regression between total returns of SKIX (Dubai Listed) and its related independents	.866	.749	.729	37.024	.000	2.118	0.123 to 0.600	1.675 to 8.139	ΔCPI ΔMPR ΔSMB

Source: Analysis output

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Table 5.24 summarizes two regression models which explain 61% to 72 % of the variation. While Nasdaq HSBC Amanah sukuk return is 61% exposed to risk, Nasdaq Dubai listed sukuk return is 72% exposed to risk. F statistics show that models are significant at the 5% level and all the models are acceptable. Nasdaq Dubai listed sukuk market is more exposed to risk than Nasdaq HSBC Amanah sukuk market.

5.5.20 Regression between Total Returns of GSKI–GCC Sukuk and Its Related Independents

Screening the data reveal that the value of Durbin-Watson (d) is 2.193. Thus, data explain no autocorrelation. The value of TOL varies between 0.123 and 0.600.

Further, the value of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Residual analysis white heteroscedasticity test revealsp value of 0.783 which is more than 0.05. This proves that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

Regression results reveal that the value of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain to 85% to 93% of the variation on sukuk return. Unexplained variation ranges between 7% and 15%.

According to the ANOVA test value of F statistics is 81.847 which has a significant model at the 5% level. An alternative hypothesis have been set as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, Shari'ah compliance risk, and liquidity risk credit risk, and GSKI–GCC sukuk return.

Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and GSKI–GCC sukuk return.

Table 5.25
OLS Regression Results for GSKI–GCC Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.167	.032	-5.135	.000		
ΔIRD	.244	.098	2.488	.015	.597	1.675
ΔCPI	1.297	.400	3.245	.002	.123	8.139
ΔDOR	-.355	.246	-1.446	.151	.558	1.791
ΔCCI	.171	.138	1.238	.219	.402	2.485
ΔMPR	.708	.282	2.513	.014	.146	6.832
ΔSMB	.187	.089	2.096	.039	.540	1.851
ΔHQR	.342	.141	2.427	.017	.176	5.690
ΔRIR	.134	.093	1.445	.152	.600	1.668
R	.932					
R Square	.869					
Adjusted R Square	.858					
F	81.847			.000		

Number of Observation=108; Durbin-Watson (d)=2.193
Source: Analysis output

Table 5.25 shows the coefficient values for developing the model. For GSKI–GCC sukuk return, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have positive relationships with the return. Whereas CPI has the highest relationship with return RIR has the lowest relationship with return. Albeit, the impact of IRD, CPI, MPR, SMB and HQR are significant at the 5% level. According to the table, interest rate risk, inflation risk, maturity risk, credit risk and Shari'ah compliance risk impact GSKI–GCC sukuk return significantly.

Beta values of variables differ in terms of different degrees. It could be argued that the dominated issuers are the dominant financial sukuk issuers in the Gulf region. There may also be a number of reasons for varying beta values. This could be due to the fact that amidst instability in the MENA region, brought on by the Arab Spring, sukuk has entered into a new era up to now enjoying an exceptional price favoring related to conventional bonds (Thompson Reuters,2013).

5.5.21 Regression between Total Returns of GSKC–GCC Corporate and Its Related Independent

Initial data screening reveals that the value of Durbin-Watson (d) is 2.059. Thus, data explain no autocorrelation. The value of TOL varies between 0.123 and 0.600. Further, the value of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity.Results of residual analysis white heteroscedasticity test reveal p value of 0.604 which is more than 0.05. This proves that the variance of the residual is constant. That means absence of heteroscedasticity.

Regression results of values of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk,credit risk, Shari'ah compliance risk and liquidity risk explain 89% to 94% of the variation on GSKC–GCC corporate sukuk return. Unexplained variation ranges between 6% and 11%. According to the ANOVA test value of F statistics is 111.113. This implies that this model is significant at the 5% level.

An alternative hypothesis stated as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and GSKC–GCC corporate sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and GSKC–GCC corporate sukuk return. Table 5.26 presents OLS regression results for GSKC–GCC corporate sukuk returns and its related independents.

Table 5.26
OLS Regression Results for GSKC–GCC Corporate Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.127	.027	-4.738	.000		
ΔIRD	.267	.081	3.313	.001	.597	1.675
ΔCPI	1.607	.329	4.885	.000	.123	8.139
ΔDOR	-.680	.202	-3.365	.001	.558	1.791
ΔCCI	.153	.113	1.350	.180	.402	2.485
ΔMPR	.347	.232	1.496	.138	.146	6.832
ΔSMB	.200	.073	2.717	.008	.540	1.851
ΔHQR	.286	.116	2.468	.015	.176	5.690
ΔRIR	.129	.076	1.699	.093	.600	1.668
R	.949					
R Square	.900					
Adjusted R Square	.892					
F	111.113			.000		

Number of Observation=108; Durbin-Watson (d) =2.059
Source: Analysis output

According to the results, the impact of IRD, CPI and DOR are significant at the 1% level, while SMB and HQR are significant at the 5% level and RIR is significant at the 10% level. Beta values are varying for several reasons. There may be a number of reasons for varying beta values. This could be due to the fact that amidst instability in the MENA region, brought on by the Arab Spring, sukuk has entered into a new era up to now enjoying an exceptional price favoring related to conventional bonds. The lower cost of using sukuk has been attributed to a wider range of investors looking for diversity away from Euro zone crisis. GCC corporate sector played a role in the GCC countries. Most investors prefer asset- backed sukuk with strong demand from the GCC corporate sector to avoid the credit risk (Thompson Reuters, 2013).

5.5.22 Regression between Total Returns of GSKF–GCC Financial and Its Related Independents

Data screening reveals that the value of Durbin-Watson (d) is 2.148 which explain no auto correlation.The value of TOL varies between 0.123 and 0.600. Further, the value of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.761 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

Regression results reveal from the value of R, R square, and adjusted R square indicate that interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain to 73% to 87% the variation on sukuk return. Unexplained variation ranges between 13% and 27%. According to the ANOVA value of F statistics is 38.932 which have a significant model at the 5% level.

An alternative hypothesis have been set as that there is a relationship between interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and GSKF–GCC financial sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. Accepting the alternative hypothesis refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and GSKF–GCC financial sukuk return. Table 5.27 presents OLS regression results for GSKF–GCC financial sukuk returns and its related independents

Table 5.27
OLS Regression Results for GSKF–GCC Financial Sukuk Returns and Its Related Independents

Model	Coefficients B	Std. Error	t	Sig.	Multicollinearity TOL	VIF
Constant	-.081	.027	-2.963	.004		
ΔIRD	.067	.083	.809	.421	.597	1.675
ΔCPI	.733	.337	2.175	.032	.123	8.139
ΔDOR	-.089	.207	-.432	.667	.558	1.791
ΔCCI	.185	.116	1.595	.114	.402	2.485
ΔMPR	.628	.238	2.642	.010	.146	6.832
ΔSMB	.197	.075	2.613	.010	.540	1.851
ΔHQR	.001	.119	.007	.994	.176	5.690
ΔRIIR	.110	.078	1.409	.162	.600	1.668
R	.871					
R Square	.759					
Adjusted R Square	.739					
F	38.932			.000		

Number of Observation=108; Durbin-Watson (d)=2.148
Source: Analysis output

For GSKC–GCC financial sukuk return, DOR has a negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have positive relationships with the return. Of these relationships, CPI has the highest relationship with return. At the same time, RIR has the lowest relationship with return. Anyway, the impact of CPI, MPR and SMB are significant at the 5% level, other risks which are not significant. According to the results of the regression inflation rate risk, maturity risk and credit risk impact significantly on GSKF–GCC financial sukuk return.

Beta values of variables differ in terms of different degrees. It could be argued that the dominated issuers are the dominant financial sukuk issuers in the Gulf region. Financial institutions hold 85% of Islamic wealth and are chasing a limited pool of instruments. It leads to latent liquidity and tighter pricing (Thompson Reuters, 2013).

5.5.23 Summary Table for Regression Model of Nasdaq Sukuk Index Incorporates GCC Sectorial Basis

Table 5.28 summarizes three regression models. These models explain 73% to 89 % of the variation. As such Nasdaq GSKI GCC sukuk return is exposed 85% to risk, Nasdaq GCC corporate sukuk return is exposed 89% to risk and Nasdaq GCC financial sukuk return is exposed 73% to risk. F statistics show that the models are significant at the 5% level and all the models are acceptable.

Table 5.28
Regression Modelsof NasdaqSukuk Index Incorporates GCC Sectorial Basis

Regression Model	R	R Square	Adjusted R Square	F	Sig.	d	TOL	VIF	Significant impact of risks
Regression between total returns of GSKI – GCC and its related independents	.932	.869	.858	81.847	.000	2.193	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔMPR ΔSMB ΔHQR
Regression between total returns of GSKC – GCC corporate and its related independent	.949	.900	.892	111.113	.000	2.059	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔDOR ΔSMB ΔHQR ΔRIR
Regression between total returns of GSKF – GCC financial and its related independents	.871	.759	.739	38.932	.000	2.148	0.123 to 0.600	1.675 to 8.139	ΔCPI ΔMPR ΔSMB

Source: Analysis output

In summary, it is possible to conclude that, on the basis of sectorial of GCC sukuk market, the Nasdaq GSKI GCC sukuk return is more exposed to risk than GCC financial and GCC corporate sectors. When compared financial sector with the corporate sector, the corporate sector is more exposed to risk than the financial sector.

5.5.24 Regression between Total Returns of AESI–UAE and Its Related Independents

Initial data screening reveals that the value of Durbin-Watson (d) is 2.095. Thus, data explain no auto correlation. The value of TOL varies between 0.123 and 0.600. Further, the value of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.953 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

From the regression analysis values of R, R square, and adjusted R square indicate that the interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 85% to 93% of the variation on sukuk return. Unexplained variation ranges between 7% and 15%. ANOVA test reveals that the value of F statistics is 80.152 which has a significant model at the 5% level.

Alternative hypothesis stated as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and AESI–UAE sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate, inflation rate risk, dollar rate, consumer confidence risk, maturity risk,credit risk,Shari'ah compliance risk and liquidity risk and AESI–UAE sukuk return. Table 5.29 presents OLS regression results for AESI–UAE sukuk returns and its related independents.

Table 5.29
OLS Regression Results for AESI–UAE Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.126	.032	-3.965	.000		
ΔIRD	.367	.096	3.815	.000	.597	1.675
ΔCPI	1.371	.392	3.495	.001	.123	8.139
ΔDOR	-.639	.241	-2.649	.009	.558	1.791
ΔCCI	.271	.135	2.006	.048	.402	2.485
ΔMPR	.393	.277	1.419	.159	.146	6.832
ΔSMB	.259	.088	2.955	.004	.540	1.851
ΔHQR	.272	.138	1.964	.052	.176	5.690
ΔRIR	.096	.091	1.052	.296	.600	1.668
R	.931					
R Square	.866					
Adjusted R Square	.855					
F	80.152			.000		

Number of Observation=108; Durbin-Watson (d)=2.095
Source: Analysis output

For AESI–UAE sukuk return, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have positive relationships with the return. When CPI has the highest relationship with return RIR has the least relationship with return. Whereas, the impact of IRD and CPI are significant at the 1% level, while DOR, CCI and SMB are significant at the 5% level and HQR is significant at the 10% level.

According to the coefficient results interest rate risk, inflation rate risk, dollar rate risk, consumer confidence rate risk, credit risk and Shari'ah compliance risk impact significantly on AESI–UAE sukuk return. It is stated that beta values of different risks vary due to the following reasons. Thompson Reuters (2013) report that UAE leads the MENA countries in sukuk volumes, with increasing competition from 2010.

5.5.25 Regression between total returns of BHSI–BH, and its related independents

Screening the data reveal that the value of Durbin-Watson (d) is 2.088. Thus, data explain no auto correlation. The value TOL varies between 0.123 and 0.600. Further, the value of VIF varies between 1.668 and 8.139. These values reflect that there is no multicollienearity. Residual analysis white heteroscedasticity test results reveal that p value of 0.922 which is more than 0.05. This implies that the variance of the residual is constant. That ensures there is no heteroscedasticity issue in the data.

The values of R, R square and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 88% to 94% of the variation in sukuk return. Unexplained variation ranges between 6% and 12%. The ANOVA test shows that the value of F statistics is 106.492 which has a significant model at the 5% level.

Alternative hypothesis stated as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and BHSI–BH sukuk return. Since value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and BHSI–BH sukuk return. Table 5.30 shows OLS regression results for BHSI–BH sukuk returns and its related independents

Table 5.30
OLS Regression Results for BHSI–BH Sukuk Returns and Its Related Independents

	Coefficients				Multicollinearity	
Model	B	Std. Error	t	Sig.	TOL	VIF
Constant	-.139	.028	-4.955	.000		
ΔIRD	.151	.085	1.778	.078	.597	1.675
ΔCPI	1.472	.346	4.257	.000	.123	8.139
ΔDOR	-.627	.213	-2.951	.004	.558	1.791
ΔCCI	.088	.119	.741	.460	.402	2.485
ΔMPR	.549	.244	2.252	.027	.146	6.832
ΔSMB	.234	.077	3.036	.003	.540	1.851
ΔHQR	.315	.122	2.580	.011	.176	5.690
ΔRIR	.174	.080	2.175	.032	.600	1.668
R	.947					
R Square	.896					
Adjusted R Square	.887					
F	106.492			.000		

Number of Observation=108; Durbin-Watson (d)=2.088
Source: Analysis output

In BHSI–BH sukuk return, DOR has a negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have relationships with the return. Of these relationships, whereas the CPI has the highest relationship with return CCI has the lowest relationship with return. Whereas, the impact of CPI is significant at the 1% level, while, DOR, MPR, SMB, HQR and RIR are significant at the 5% level and IRD is significant at the 10% level. According to the table interest rate risk, inflation rate risk, dollar rate risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk impact BHSI–BH sukuk return significantly.

It is stated that beta values of different risks vary due to the following reasons. In the Middle East, Bahrain was the first to issue the sukuk in the GCC. The Central Bank of the Bahrain regularly issues short term financial instruments in the form of sukuk. These short term sukuk are sold oversubscribed than to the large appetites of local corporations and investors (Thompson Reuters, 2013).

5.5.26 Regression between Total Returns of MYSI –MY and Its Related Independents

Initial data screening reveals that the value of Durbin-Watson (d) is 2.222. Thus, data explain no auto correlation. The value of TOL varies between 0.123 and 0.600. Further, VIF varies between 1.668 and 8.139. These values reflect that there is no multicollinearity. Results of residual analysis white heteroscedasticity test have shown a p value of 0.054 which is more than 0.05. This ensures that the variance of the residual is constant. That means there is no heteroscedasticity issue in the data.

Regression values of R, R square, and adjusted R square indicate that interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk explain 73% to 86% of the variation in sukuk return. Unexplained variation ranges between 14% and 27%. According to the ANOVA test value of F statistics is 37.799 which has a significant model at the 5% level.

Alternative hypothesis stated as that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and MYSI –MY sukuk return. Since significant value is less than 0.05, the alternative hypothesis is accepted. This refers to that there is a relationship between interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk and MYSI –MY sukuk return. Table 5.31 presents OLS regression results for MYSI –MY sukuk returns and its related independents.

Table 5.31
OLS Regression Results for MYSI –MY Sukuk Returns and Its Related Independents

Model	Coefficients B	Std. Error	t	Sig.	Multicollinearity TOL	VIF
Constant	-.149	.038	-3.876	.000		
ΔIRD	.330	.116	2.852	.005	.597	1.675
ΔCPI	1.092	.471	2.316	.023	.123	8.139
ΔDOR	-.216	.290	-.744	.458	.558	1.791
ΔCCI	.285	.163	1.754	.083	.402	2.485
ΔMPR	.560	.332	1.683	.096	.146	6.832
ΔSMB	.191	.105	1.810	.073	.540	1.851
ΔHQR	.050	.166	.298	.766	.176	5.690
ΔRIR	.303	.109	2.776	.007	.600	1.668
R	.868					
R Square	.753					
Adjusted R Square	.733					
F	37.799			.000		

Number of Observation=108; Durbin-Watson (d) =2.222
Source: Analysis output

For MYSI –MY sukuk return, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have positive relationships with the return. Of these relationships, once CPI has the highest relationship with return HQR has the lowest relationship with return. Whereas, the impact of IRD, CPI and RIR are significant at the 5% level and CCI, MPR and SMB are significant at the 10% level.

According to the table the interest rate risk, inflation rate risk, consumer confidence rate risk, maturity rate risk, credit risk and liquidity risk impact MYSI –MY sukuk return significantly. It is stated that beta values of different risks vary due to the following reasons. The Malaysian domestic market has grown from strength to strength facilitated by a well- established regulatory framework that has attracted both domestic and international issuers. Leading the way, the Malaysian government itself has been a prolific issuer with Bank Negara Malaysia enjoys 51% of the market share

of the amount of the all sukuk issued from January 1996 to September, 2013 (Thompson Reuters, 2013).

5.5.27 Summary Table for Regression Model of Nasdaq Sukuk Index Incorporates Selected Countries Basis

Table 5.32 summarizes three regression models. Three models explain 73% to 88 % of the variation. United Arab Emirate sukuk return is exposed 85% to risk, Bahrain sukuk return is exposed 88% to risk and Malaysia sukuk return is exposed 73% to risk. F statistics show that the models are significant at 5% and all the models are acceptable.

Table 5.32
Regression Models of Nasdaq Sukuk Index Incorporates Selected Countries Basis

Regression Model	R	R Square	Adjusted R Square	F	Sig.	D	TOL	VIF	Significant impact of risks
Regression between total returns of AESI – UAE and its related independents	.931	.866	.855	80.152	.000	2.095	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔDOR ΔCCI ΔSMB ΔHQR
Regression between total returns of BHSI –BH and its related independents	.947	.896	.887	106.492	.000	2.088	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔDOR ΔMPR ΔSMB ΔHQR ΔRIR
Regression between total returns of MYSI–MY and its related independents	.868	.753	.733	37.799	.000	2.222	0.123 to 0.600	1.675 to 8.139	ΔIRD ΔCPI ΔRIR ΔCCI ΔMPR ΔSMB

Source: Analysis output

Analysis of risk impact on the basis of selected country indicate that, Bahrain sukuk market is highly exposed to risk than other sukuk markets of other countries. UAE is

secondly exposed to risk, among other countries. But risk is minimal in Malaysian sukuk structure.

5.6 Achievements of Objectives

This study analyzed sukuk market from several perspectives. All the perspectives and views confirm that regression models reveals sukuk return are exposed to market risk, operational risk, credit risk and liquidity risk. Since all significant values of all the models are less than 0.05, all the F statistics of these models prove that the models are significant at the 5% level and acceptable. This study achieved all the objectives using regression with the support of F statistics. It could be stated that market risk (interest rate risk, inflation rate risk and dollar rate risk), operational risk (legal and Shari'ah compliance risk and consumer confidence risk), credit risk (credit risk and maturity risk) and liquidity risk (liquidity risk and reinvestment risk) has explained significant variation in total return of sukuk.

First, Dow Jones global wise pice sukuk return is exposed 90% to risk. F statistics show that the models are significant at the 5% level and all models are acceptable. Dow Jones global wise confirmed regression model based on Dow Jones price sukuk return is slightly higher exposed to risk in the sukuk structure. Thus interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and liquidity risk influence the DJ price sukuk return significantly. Beta values of interest rate risk, inflation rate risk, dollar rate risk, consumer confidence risk, maturity risk, credit risk, Shari'ah compliance risk and

liquidity risk differs. This is because sukuk are priced based on the risk premium required by investors above the risk free rate.

Second, Dow Jones maturity base confirmed that four models explain 60% to 86 % of the variation. F statistics show that the models are significant at the 5 % level and all models are acceptable. Further, the results of the analysis on the basis of maturity indicate that, long period of maturity based sukuk market, i.e. Dow Jones M10T sukuk return is highly exposed to risk. Conversely lowest maturity period sukuk is less exposed to risk. As such, it is possible to conclude that when the maturity period is increasing the risk impact also get increased in the sukuk structure.

Third, the Dow Jones rating basis revealed that four regression models explain 67% to 87 % of the variation. F statistics show that the models are significant at the 5 % level and all models are acceptable. The results of the analysis on the rating base also indicate that impact of risk is very high on Dow Jones R3B sukuk return. Dow Jones R2A sukuk return and Dow Jones R1A sukuk return have a similar risk impact on the sukuk structure. However, Dow Jones R3A sukuk return is impacting very less by risks.

Fourth, Nasdaq index global sectorial basis sukuk index found that four models explain 73% to 89 % of the variation. F statistics show that the models are significant at the 5% level and all models are acceptable. The analysis of global sectorial base results indicates that sovereign sukuk return is very less exposed to risk compared with other sectors such as corporate sukuk and finance sukuk. Therefore, it is possible to conclude that sovereign sukuk return is minimally exposed to risk. It is also found

that when corporate sector compared with finance sector risk impact is high in the corporate sector.

Fifth, Nasdaq specified sectorial sukuk market assured that two models explain 61% to 72% of the variation. F statistics show that the models are significant at the 5% level and all models are acceptable. Analysis of results on the basis of special sectorial indicates that when Nasdaq HSBC Amanah sukuk is compared with Nasdaq Dubai listed sukuk, the risk impact is higher in Nasdaq Dubai listed sukuk.

Sixth, Nasdaq GCC sectorial sukuk index basis ensured that three regression models explain 73% to 89 % of the variation. F statistics show that the models are significant at the 5 % level and all models are acceptable. Analysis on the basis of sectorial of GCC sukuk market Nasdaq GCC sukuk return is more exposed to risk than GCC financial and GCC corporate sectors. When compared finance sector with the corporate sector, the corporate sector is more exposed to risk than the financial sector.

Seventh, active Nasdaq sukuk index on a country basis revealed that three regression models explain 73% to 88% of the variation. F statistics show that the models are significant at the 5% level and all models are acceptable. Analysis of risk impact on the basis of selected country indicate that, Bahrain sukuk market is highly exposed to risk than the other countries sukuk market. UAE is secondly exposed to risk, among other countries. But the risk impact is minimal in Malaysian sukuk market.

5.7 Chapter Summary

This chapter has dealt with data analysis and discussion of findings.The first section of this chapter outlines the descriptive statistics such as mean and standard deviations. The next section of this chapter explains about data that are presented using line charts for dependent and independent variables. In the first instance, descriptive statistics are presented. This chapter outlines correlation that is analyzed on the basis of two main categories such as Dow Jones sukuk index and Nasdaq dubai sukuk index.

Then data were initially screened to test the autocorrelation, multicollinearity and heteroscedasticity. All the values of Durbin Watson (d) are approximately 2. Thus, data disclosed that there is no autocorrelation. Similarly, all the values of TOL and VIF range between 0 and 1 and below 10. Thus, it is decided that there is no multicollinearity among data set. All results of residual analysis white heteroscedasticity test reveal p value of more than 0.05. This proves that the variance of the residual is constant. That means absence of heteroscedasticity.

Followed by the correlation analysis, regressions are conducted with F and t statistics. Dow Jones sukuk index covers global index, maturity based index and rating based index. Nasdaq sukuk index incorporates global sectorial basis, GCC sectorial basis, specific market basis and selected country basis. On the basis of these categorizations, correlation is carried out to know the relationship between total sukuk return and interest rate risk, inflation rate risk, dollar rate risk that are measured by market risk. Consumer confidence risk and Shari'ah compliance risk are used for measuring

operational risk. Maturity risk and credit risk are used for measuring credit risk and reinvestment rate risk are used to measure liquidity risk. All significant values of all the models are less than 0.05, all the F statistics of these models prove that the models are significant at the 5% level and all models are acceptable.

Generally, results indicate that risks impact the global sukuk returns differently. Further, the results of the analysis on the basis of maturity indicate that, long period of maturity based sukuk market is highly exposed to risk. The results of the analysis on the rating base also indicate that impact of risk is very high on low rated sukuk return. The analysis of global sectorial base results indicates that sovereign sukuk return is very less exposed to risk compared with other sectors such as corporate sukuk and finance sukuk. Analysis on the basis of sectorial of GCC sukuk market, when compared finance sector with the corporate sector, the corporate sector is more exposed to risk than financial sector. Analysis of risk impact on the basis of selected country indicate that, Bahrain sukuk market is highly exposed to risk than other sukuk markets of UAE and Malaysian sukuk structure. Therefore, this study achieved all the three objectives. The next chapter outlines the conclusions and recommendations.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

Chapter five outlined the data presentations, analyses, results and discussion of findings. This chapter describes the findings, conclusions and recommendations. Further, this chapter includes limitations of this study and further research avenues.

6.2 Discussion of Findings

This study sets three objectives. The first objective was to identify different types of risks embedded in sukuk structure. The study identified different types of risks. Market risk that covers interest rate risk, inflation rate risk and dollar rate risk. Credit risk includes credit risk and maturity risk. Operational risk includes consumer confidence rate risk, legal and Shari'ah compliance risk. Liquidity risk is liquidity risk and reinvestment risk.

There are a number of previous researchers who have found these different types of risks. Al-Amine (2012) found that any increase in interest rate directs to the decrease in the fixed returns of sukuk values. The same have also been proved by Haral, (2010); Mehmood (2010); Razaq (2010); Cheema (2010); Hashmi (2010). Grumman (2013) found that when observing inflation or purchasing power risk, it is the risk that the investment in return. Similar notions have been found by Investopedia (2009) and Fma (2012). Grumman (2013) pointed out that, the risk where the risk and return changes affect the exchange rate. Similar findings have also been proved by Fma (2012), Barclays (2013), and Quqa (2008).

Credit risk is found in the risk structure (Wilson, 2007; Al-Amine, 2012; Howladar, 2006; Baeshen, 2009; Alexander, 2009; Agha & Grainger, 2009; Haral, 2010; Mehmood, 2010; Razaq, 2010). Maturity risk means that the predetermined fixed return may lead to some risk for the sukuk holders (Cheema, 2010). Other researchers, i.e. Hashmi (2010), Ullah (2010), Kokab (2010), Haral (2010), and Mehmood (2010) found the same in their study.

Estrella (2006) found about consumer confidence risk and return in the U.S. market. Few other researchers, i.e. Lemmon (2000), Baker and Wurgler (2007) and Razaq (2010) found the most important risk to the sukuk market is the legal risk. One of the most important risk is the Shari'ah compliance risks (Mehmood, 2010; Razaq, 2010; Haral, 2010; Tariq, 2004; Hasan, 2008; Howladar, 2010; Karim, 2009; Mehmood, 2010; Hashmi, 2010; and Al-Amine, 2012).

There are research findings regarding exposures for sukuk that are liquidity risk (Razaq, 2010). The same was found by a few other researchers too. There are reports regarding liquidity risk (Fma, 2012).

The study found different types of risks that are embedded in sukuk structure. Market risks are interest rate risk, inflation rate risk and dollar rate risk. Credit risks are a credit risk and maturity risk. Operational risks are consumer confidence rate risk, legal, Shari'ah compliance risk. Liquidity risks are liquidity and reinvestment risk. These findings are supported by justifications of previous research findings. Thus, the findings of this study are consistent with the previous findings.

Following the first objective, the second objective of this study is to know the relationships among different types of risks (market risk, credit risk, operational risk and liquidity risk) and the return of sukuk. The relationship between different risk and

return have been tested on seven bases. The first basis is DJ price sukuk returns. For DJ price sukuk returns, while the DOR has a negative relationship with return IRD, CPI, CCI, MPR, SMB, HQR and have positive relationships. Of these positive relationships, CPI has the highest positive relationship. Contrarily, RIR has the least positive relationship. Interest rate risk and inflation risk in market risk have a positive relationship with return. Whereas, dollar rate risk in market risk has a negative relationship with return. Credit risk and maturity risk in credit risk have a positive relationship with sukuk return. Legal and Shari'ah compliance risk and consumer confidence risk in operational risk shows a positive relationship with return. Liquidity and reinvestment risk in liquidity risk has a positive relationship with return. Although there are variations within the remaining six bases all the results are supported on this basis of maturity, rating, sectorial, specific market, GCC sectorial and country.

The above findings are also supported by previous empirical evidences. The relationship between market risk (interest rate risk, inflation risk and dollar rate risk) and sukuk returns. These results are confirmed by previous studies. Results found by Fathi, Zarei and Esfahani (2012) showed that interest rate risk and diversification risk have significant correlation with returns. Inflation risk has links with rate of return. Studies proved the relationship between risk and rate of return (Aamer, 1994). Tobin (1958) found that the inflation risk has relationship return. Fama and French (1989) concluded that the variation with respect to inflation risk and return on low-grade bonds than in high-grade bonds. Campbell (1987) proves the relationship between inflation risk and return based on conditional mean and conditional variance. Banz (1981) concluded that this 'size effect' between inflation risk and return has been in existence for at least forty years. Shetty and Manley (1998) found a substantial

difference in the size and the direction of the currency risk impact as the currency base of the investment is changed. Study of Aggarwal (1981) proved the negative relationship between the impact of currency risk movement and the return outcome. According to Solnik and Noetzlin (1982), it was found that the exchange risk factor adds 15% to the total return averaged over the 1970-80 period on a dollar-based investment. Munro (2014) revealed that the currency risk correlates with the return in bond markets. Findings of Chen et al. (2014) and Engel and West (2010) assured the relationship between the foreign exchange risk and return in the bond market. Stalstedt (2006) found that the exchange rate risk was increased with between 1.95% – 410.52% in relation to the return on the bond market. Mueller, Stathopoulos, and Vedolin (2014) found that there is an excess return of 4% due to the international currency risk between 1999 and 2011.

The relationship between credit risk (credit risk, and maturity risk) and sukuk return are emphasized by previous literatures. Results of Avramov et al. (2011) revealed that an average return does not differ across credit risk groups in periods of stable or improving credit conditions. Dichev (1998) and Campbell, Hilscher and Szilagyi (2008) confirmed that the negative relation between credit risk and returns. The findings of this study are similar to the findings of Fama and MacBeth (1973) that was a cross-sectional regression of monthly individual returns on credit risk. The study uses the CAPM. There is a negative relation between credit risk and returns is robust to adjustments for risk as well as for firm characteristics (Sharpe, 1964; Lintner, 1965; Fama & French, 1993; Daniel, Grinblatt, Titman, and Wermers, 1997). Berrada, Gibson, and Mougeot (2001) revealed a moderate relationship between systematic risk and return. Likewise, there was no relationship between credit risk and return. Schwendiman and Pinches (1975) concluded that there is no visible effect with

respect to credit risk and return. Bheenick (2012) concluded there is a known credit risk relationship, which highlights a negative relationship between credit risk and bond market returns. Oretha (2012) found that this study revealed a positive relationship between the credit risk and financial return performance. Friewald, Wagner and Zechner (2011) revealed a strong link between credit risk and return in bond markets. SEC (2014) concluded that bonds with a longer maturity risk generally have a higher interest rate risk than similar bonds with shorter maturity risk.

The relationship between operational risk (legal & Shari'ah compliance risk) and sukuk returns are affirmed by previous studies. Natarajan and Dharani (2012) revealed that the Shari'ah compliant risk has a connection or relationship with return. The studies conducted by Abdullah and Bacha (2001) revealed that the Shari'ah compliance risk has a relationship with the returns for trading volume of the Shari'ah stocks. It was found that exclusion of Shari'ah compliance risk the stocks reduced the returns for trading volume of the Shari'ah stocks in the Malaysia. Ahmad and Ibrahim (2002) concluded that there is no significant difference in Shari'ah compliance risk and return performance of both indices during the three sample period. Estrella (2006) showed that confidence risk and return of bond prices are useful with one- to three-quarter horizons. Lemmon (2000) found that the consumer confidence risk has rapport with return, albeit, the rapport does not appear to forecast time-series variation in the value and momentum premiums. Baker and Wurgler (2007) revealed that bonds of low consumer confidence sentiment have lower return. In other words, higher risks are caused by low consumer confidence. Marston (1999) found that consumer confidence and return varies over time and that much of this variation can be explained by either the risk return relationship for bond. It was concluded that risk and return are inversely related with one another.

The relationship between liquidity risk (liquidity risk and reinvestment risk) and sukuk returns are confirmed by previous literatures. Chordia, Sarkar and Subrahmanyam (2005) found that liquidity risk and return of bonds have proven relationship and are common for knowing factors driving liquidity risk and return in these markets. Jong and Driessen (2012) found the very similar evidence for the liquidity risk and return relationship for corporate bonds for a sample of European corporate bond prices.

The third objective was to determine the impact of different types of risks on the return of sukuk. First, this study analyzed the data of global based Dow Jones sukuk return. The results confirm the regression model which shows risk factors have 90% impact on sukuk return. For DJ price sukuk returns, while the DOR has a negative relationship with return IRD, CPI, CCI, MPR, SMB, HQR and have positive relationships. Of these positive relationships, CPI has the highest positive relationship. Contrarily, RIR has the least positive relationship. All the risks in this category are significant. This reveals that Dow Jones price sukuk return is exposed to risk significantly in the sukuk structure.

When comparing all the results, inflation risk plays an important role in the global sukuk return. This implies that inflation risk has highest significant impact on sukuk return. Reason for this result may be due to the fact that investors believe long term maturity period has more risk and uncertainty. Next to inflation risk, maturity risk, interest rate risk and credit risk influence sukuk return significantly. The remaining risk, such as dollar rate risk, liquidity risk and consumer confidence rate risk also influence at a minor level in sukuk return. Interest rate plays a major role in this significant impact on sukuk return. In support of these findings, Tariq (2004) argued that the issuers of the sukuk need to respond to fluctuation in libor as any rais in

income will have to be common with the investors. Interest rate plays major role in the market risk. Further, inflation rate risk denotes the risk that the rate of price increases in the economy deteriorates the returns associated with the bond (Investopedia, 2009). For further supporting these results, data were analyzed on other bases as well.

The results of these analyses of different sukuk market structures are outlined in the succeeding sections. They are: first, Dow Jones maturity based analysis confirmed that four models explain 60% to 86% of variation of risk exposure to sukuk return. As such, Dow Jones M3T sukuk return is 60% exposed to risk. For 3 year maturity risk, HQR has a negative relationship with return. IRD, CPI, DOR, CCI, MPR, SMB and RIR have a positive relationship with return. Of these risks, CPI and SMB have the highest positive relationships. But, DOR has the least positive relationship with return. All the risks except CPI, MPR and SMB are significant. Dow Jones M5T sukuk return is 69% exposed to risk. However, IRD, CPI, CCI, SMB and RIR are found to be significant. Dow Jones M7T sukuk return is 72% exposed to risk. Similar results have been observed for the 7 year maturity period as at 5 year maturity period. But, IRD, CPI, CCI, MPR, SMB and RIR are found to be significant. Dow Jones M10T sukuk return is 86% exposed to risk**.** Similar results have been observed for the 10 year maturity period as at 7 year maturity period. However, IRD, CPI, DOR, CCI, MPR, SMB and HQR are significant. It could be observed that the longer period the more risk and the shorter period the lower risk.

These results imply that, longer period of maturity based sukuk market return, i.e. Dow Jones M10T sukuk return is highly exposed to risk. Conversely lowest maturity period sukuk is less exposed to risk. As such, it is possible to conclude that when the

maturity period is increasing the risk impact on the sukuk return also get increased in the sukuk structure. Reason for this may be due to the fact that in the long run there are more chances for fluctuations in the inflation rate, interest rate, credit risk, consumer confidence risk. Recent research findings also provide support for this justification. As stated by Al-Amine (2012) interest rate may increase or decrease in the fixed returns on sukuk values. There was another research finding, which specifies that fixed rate sukuk are exposed to the interest rate risk in the same way as bond. There is a negative relationship between interest rate and sukuk price. When there is an increase in interest rate sukuk price decline and vice versa (Haral, 2010). Asset based sukuk is the best example for this type (Mehmood, 2010). In this study, there is positive relationship between interest rate and sukuk price. This may be possible in longer time. During shorter period, there may be positive. Towards the longer period, interest may become negative. Interest rate risks have been identified as instrumental on return as specified in all above three studies.

Further, Thompson Reuters Survey (2013) reported that the most outstanding international sukuk are expected to mature within the next 3 to 5 years. But investors prefer to invest in medium term sukuk because of interest rate risk. However, the sukuk issuers expect longer turner issuances of 5 to 10 years to meet their fund requirements. Nearly all of these recently issued international sukuk paper carry the fixed coupon. Most of them were issued in a low interest rate environment during the financial crisis. Investors may have been looking for high fixed rates, but, took advantage of low Libor rates to issue their fixed coupon sukuk in turn fixing their cost of funding. On the other hand issuers found 4% to 5% of average returns during this period and demanded more fixed coupon sukuk.

Next findings of the analysis of Dow Jones rating based revealed that four regression models explain 67% to 87 % of variation in risk impact on returns. Risk factors have 67% impact on Dow Jones R3A sukuk return. For DJ R3A sukuk returns, DOR has a negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have a positive relationship with return. Whereas CPI has the highest positive relationship HQR has the lower relationship with return. Despite this relationship, IRD, CPI, CCI, SMB and RIR are significant. Dow Jones R2A sukuk return is71% exposed to risk. Similar results are found in DJR2A sukuk returns as at DJR3A. In terms of this type, CPI, CCI, SMB and RIR are significant whereas other risks are not. Dow Jones R1A sukuk return is 73% exposed to risk. Similar results are found in DJR1A sukuk returns as at DJR3A. Likewise, whereas CPI, MPR and SMB are significant other types are not significant. Dow Jones R3B sukuk return is 87% exposed to risk. Despite this relationship, IRD, CPI, DOR, MPR, SMB, HQR and RIR are significant. Other risks are not significant.

The results of the analysis on the rating based also indicate that impact of risk is very high on Dow Jones R3B sukuk return. Dow Jones R2A sukuk return and Dow Jones R1A sukuk return have a similar risk impact on the sukuk structure. However, Dow Jones R3A sukuk return impact very less by risks. Rationales for this result may be that more than two third of the investors believe that rating should be compulsory, as the opinion of independent third party on the credit quality of sukuk provide investors with an added measure of comfort. According to Thompson Reuters Survey (2013) 68% of sukuk investors prefer that sukuk have to be rated in BBB and above.

Generally, sukuk investors agreed that sukuk should be rated above this particular level to avoid the credit risk.

Third, regression analyses of Nasdaq Dubai sectorial based sukuk return found four models explaining70% to 89 % of variation of risk impact on sukuk return. As such global sukuk return, sovereign sukuk return, corporate sukuk return, and financial sukuk returns are 88%, 70%, 89% and 73% exposed to risk respectively. For SKBI (Global) sukuk returns, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have a positive relationship with return. Of these positive relationships, CPI occupies the highest positiveness with the return. RIR has the least positiveness with the return. Anyway, IRD, CPI, DOR, MPR, SMB and HQR are significant. Similar results were found to be in SUSI (Sovereign) as at SKBI (Global). Anyhow, IRD, CPI, CCI, SMB and RIR are significant. Similar results were found to be in SUCI (Corporate) as at SKBI (Global). Anyway, IRD, CPI, DOR, CCI, MPR, SMB, HQR and RIR are significant. Similar results were found to be in SUFI (Financial) as at SUSI (Sovereign). Despite this result,only CPI, MPR and SMB are significant other types are not significant.

The analysis of global sectorial based results indicates that sovereign sukuk return is very less exposed to risk compared with other sectors corporate sukuk and finance sukuk. Therefore, it is possible to conclude that sovereign sukuk return is minimally exposed to risk. It is also found that when corporate sector is compared with the finance sector, risk impact is high in the corporate sector. These results can be justified as explanatory power focuses more on credit risk and maturity risk. Empirical findings prove these findings.

Haral (2010) stated that the profit or return payment risk play important role during the maturity period of sukuk. Predetermined fixed return has some risk for the sukuk holders with regard to the financial planning. Therefore, it is possible for credit risk and default risk during the maturity period when corporate sector becomes worst condition. This is possible in case of big investments (Cheema, 2010; Hashmi, 2010). There is also possibility for face value realization risk in situations like equity based sukuk structure. This type of the risk represents the face value of the certificate. It it performed on the basis of performance of the underlying assets or service (Ullah & Kokab, 2010). Research findings of studies by Haral (2010), Cheema (2010), Hashmi (2010) and Ullah and Kokab (2010) support the role of credit risk and maturity risk in sukuk return. All these situations are more possible, especially in corporate sukuk than finance sukuk and sovereign sukuk.

Nasdaq Dubai specified sukuk market assured two models explain 61% to 72% of variation of risk impact on sukuk return. Nasdaq HSBC Amanah sukuk return is 61% exposed to risk. For HASI (HSBC Amanah), DOR and HQR have the negative relationship with return. IRD, CPI, CCI, MPR, SMB and RIR have a positive relationship with return. While CPI has the highest positiveness RIR has the least positiveness. Since there is the positive relationship, CPI, MPR and SMB are significant. The other remaining risks are not significant. Nasdaq Dubai listed sukuk return is 72% exposed to risk. For SKIX (Dubai Listed), DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have a positive relationship with return. Of these positive relationships, while CPI has the highest relationship with return HQR has the lowest relationship with return. However, CPI, MPR and SMB are significant.

Analysis of results on the basis of specific sectorial indicates that when Nasdaq HSBC Amanah sukuk return is compared with Nasdaq Dubai listed sukuk return, the risk impact is higher in Nasdaq Dubai listed sukuk return. This might also be by credit risk. Some of the previous findings support these results (Wilson, 2007; Al-Amine, 2012; Howladar, 2006; Kokab, 2010). Above research findings confirm the impact of credit risk on return.

Analysis on the basis of Nasdaq Dubai sectorial sukuk return on GCC sukuk structure ensured three models explain 73% to 89 % of variation of risk impact on returns. Nasdaq Dubai GCC sukuk return is 85% exposed to risk. For GSKI–GCC sukuk, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have positive relationships with the return. Whereas CPI has the highest relationship with return RIR has the lowest relationship with return. Albeit, IRD, CPI, MPR, SMB and HQR have shown significant impact. Nasdaq GCC corporate sukuk return is exposed 89% by risk factors. Similar findings were obtained from GSKC–GCC corporate sukuk return as at GSKI–GCC sukuk. However, IRD, CPI, DOR, SMB, HQR and RIR are significant, whereas other risks are not. Nasdaq GCC financial sukuk return is exposed 73% to risk variables. For GSKC–GCC financial sukuk return, DOR has a negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have positive relationships with the return. Of these relationships, CPI has the highest relationship with return. At the same time, RIR has the lowest relationship with return. Anyway, CPI, MPR and SMB are significant, other risks which are not significant.

Analysis on the basis of sectorial of GCC sukuk market, Nasdaq Dubai GCC sukuk return is more exposed to risk than sukuk market return of GCC financial and GCC corporate sectors. When compared to finance sector with the corporate sector, the corporate sector sukuk return is more exposed to risk than financial sector sukuk return.

One of the most important reasons for these results may be due to the impact of operational risk i.e Shari'ah compliance risk. There are many supporting evidences for this argument in the literature. Mehmood (2010) states that sukuk is associated with many risks, such as mechanism of poor regulations of the sukuk. Generally in sukuk is not actively traded in the secondary market in the GCC region. Thus, risk of liquidity is generated by this situation.

The Shari'ah compliance risk is led by this (Razaq, 2010; Haral, 2010). When the period of sukuk matures, it tries to expand to the world and there is an emergence of the Shari'ah compliance risks that are coming to happen. There is an urgent need to deal with this issue. Otherwise, growth of sukuk market will be badly affected (Razaq, 2010). All these research findings support with the present finding. That means operational risk i.e Shari'ah compliance risk plays an important role in the GCC sukuk market. It could be justified as effect of financial crisis impact, especially in the financial sector. They are keen with Shari'ah compliance when compared with other sector.

It is also possible to justify the results by dollar rate risk that occurs from inauspicious exchange rate fluctuation which reacts on foreign exchange position. The results also

reveal that Dollar rate risk also has significant impact on returns. This is witnessed by empirical evidence of Quqa (2008). Mehmood (2010) found that sukuk issuers look at other market risk named currency exchange risk which influences the buying behavior of investors in foreign currencies. It is also worthy to note that all the listed sukuk are maintained in US Dollar in sukuk market. Therefore, dollar rate risk impact the sukuk return.

Analysis of Nasdaq Dubai sukuk return on a country basis, which are actively involving in sukuk market revealed that three regression models explain 73% to 88% of variation of risk impact on returns. United Arab Emirate sukuk return is 85% exposed to risk. For AESI–UAE sukuk return, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have positive relationships with the return. When CPI has the highest relationship with return RIR has the least relationship with return. Whereas IRD, CPI, DOR, CCI, SMB and HQR are significant other risks are not. The Bahrain sukuk return is 88% exposed to risk. In BHSI–BH sukuk return, DOR has a negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have relationships with the return. Of these relationships, whereas CPI has the highest relationship with return CCI has the lowest relationship with return. As IRD, CPI, DOR, MPR, SMB, HQR and RIR are significant other risks are not significant. Malaysia sukuk return is 73% exposed to risk. For MYSI –MY sukuk return, DOR has the negative relationship with return. IRD, CPI, CCI, MPR, SMB, HQR and RIR have positive relationships with the return. Of these relationships, once CPI has the highest relationship with return HQR has the lowest relationship with return. Whereas IRD, CPI, CCI, MPR, SMB and RIR are significant others are not.

Analysis of risk impact on the basis of selected country indicate that, Bahrain sukuk market is highly exposed to risk than sukuk markets in other countries. UAE is secondly exposed to risk, among other countries. But the risk impact is minimal in Malaysian sukuk market. Today, the world is moving fast. Investors have the liberty to invest and divest as and when they wish. As far as traditional bond is concerned, there is an important feature that has liquidity. Since well-structured and sufficient secondary markets are in negligible amount in selling sukuk, sukuk markets are exposed to liquidity risks (Razaq, 2010). Absence of the secondary market is the major disadvantage for sukuk trading (Haral, 2010). The secondary market functions locally in countries, Malaysia, UAE and Bahrain for selling sukuk. However, in the case of the rest of the world, it is not so (Ullah, 2010). Although local markets trade sukuk in the secondary markets, liquidity problems are not solved by any regulatory bodies in these countries.

Therefore, findings of the present study support with the previous findings of studies. Fathi, Zarei and Esfahani (2012) studied about studying the role of financial risk management on return on equity. Results showed that interest rate risk and diversification risk have significant correlation with ROE, but there is no significant correlation between credit risk and ROE. Avramov et al. (2011) studied about credit ratings and the cross-section of stock returns. Firms with low credit risk, realize higher returns than firms with high credit risk. This credit risk effect in the cross-section of stock returns is a puzzle because investors appear to pay a premium for bearing credit risk. This study shows that the negative relation between credit risk and returns is statistically and economically significant only during periods of credit rating downgrades. Shetty and Manley (1998) studied about analysis of the currency impact

on international investment. This study examined the currency impact on risk-return outcomes, market correlations, and the relationship between volatility and correlation from the perspective of non-dollar based investments. This study investigates the empirical relation between inflation and stock return in ten industrialized countries, with a focus of the implications for links between inflation and the macro economy. The empirical results suggest that generally higher inflation is associated with both lower real dividends and lower real dividends and lower required real equity returns in the future. Natarajan and Dharani (2012) studied about Sharia compliant stocks in India. The Shariah compliant stocks are tradable stocks which adhere the Shariah Investment principles. The study reveals that the average returns of the Shariah Compliant Stocks and benchmark indices were almost similar. Hence, the study reveals that the equity based Shariah Compliant investment is a viable and ethical investment avenue. SEC (2014) studied about the effect of maturity on interest rate risk and coupon rates. The longer the bond's maturity, the greater the risk that the bond's value could be impacted by changing interest rates prior to maturity, which may have a negative effect on the price of the bond.

In brief, results of regression analysis disclose that all models are significant and acceptable. Thus, the third objective was to determine the impact of different types of risks on the return of sukuk. From the findings, it could be stated that market risk, operational risk, credit risk and liquidity risk has significant impact on total return of sukuk in all the seven sukuk market structures at different levels. Findings can also be summarized as, maturity risk; interest rate risk and credit risk have shown the high significant impact on sukuk return in all types of sukuk structure. In addition to that inflation rate risk, dollar rate risk, Shari'ah compliance risk and liquidity risk have

shown a significant impact on sukuk return. Thus, this study achieved all the three objectives in this study.

6.3 Recommendations

This study focuses number of recommendations on the bases of research findings. Numbers of risk factors have been identified to have significant impact on sukuk return in all types of sukuk structures. Inflation rate risk and interest rate risk have been identified as the one important cause for this result. When inflation risk is present the time value of money declines. Thus, this type of risk is important for macro environmental reasons and purchasing power. Thus, it can be recommended that inflation rate risk should be controlled at an optimal level for the benefit of macroeconomic stability. Government regulators and policy makers should pay attention on these issues periodically.

Another reason for this result may be due to the fact that sukuk issuers consider LIBOR rate as a benchmark to maintain a higher level of return rate for avoiding interest rate risk. Further, most of the sukuk investors have enjoyed a reasonable fixed return for the last couple of years plus high capital gain due to heavy market demand. However, these investors are expected to face future interest rate risk once the global market recovers.

Since most of sukuk were issued in a low interest rate environment during the financial crisis, investors may have been looking for high fixed rates, but, took advantage of low Libor rates to issue their fixed coupon sukuk in turn fixing their cost of funding. As an alternative solution, Thomson Reuters has introduced a common

interest rate in place of libor rate. It is recommended that interest rate introduced by Thomson Reuters is far better than the libor rate as this interest rate has been formulated especially for Islamic finance industry. This is one of the significant improvements to avoid the interest rate risk in sukuk markets. Since this study also found interest rate as one of the important risk factors in deciding sukuk return, it is recommended to follow the return rate of Thompson Reuters for sukuk companies by which interest rate risk can be voided.

Another risk factor which influences sukuk return identified in this study is dollar rate risk. World economic fluctuation affects the dollar rate which causes currency risk in sukuk. To avoid such risk, it can be recommended that sukuk issuers should issue their sukuk in their own currency. As per this study, it can be recommended that as much as possible sukuk should be issued in a commonly Gulf- maintained currency because of the dominance of Gulf countries in sukuk market. It is possible due to the reason that the gulf countries are in well balanced and wealthy countries. In addition to that, these countries are Islamic countries that are based on Sharia principles that are easy to implement the sukuk concepts for avoiding currency risk.

Another risk factor identified in this study is maturity risk. Investors generally prefer short-term maturity period to avoid maturity risk. But, issuers prefer long term maturity period. Thus, it is recommended that there must be a mutual balance in respect of maturity period between investors and issuers for the purpose of survival of sukuk market and confidence of investors. Thus, investors and issuers should maintain a strategic investment plan for the benefit of both parties, to avoid such risk. After the financial crisis, financial market is not stable. So, the investors prefer to

invest within short term rather than long term. Thus, maturity risk is always the deciding factors for attracting investors. This maturity period is main for investment decision for investors.

Further, credit risk also been identified as a major risk factor which impact sukuk return in this study. Therefore, companies should maintain risk mitigation and risk management strategies to avoid such risks. It could be recommended that risk steering committee should develop and monitor such strategies for mitigating credit risk from time to time. Periodic evaluation should be done systematically on these strategies.

Another important risk factor identified in this study is a Shari'ah compliance risk. In other words, operational risk is very important for the development of sukuk market. Because, Shari'ah should be adopted in sukuk market such a way to create confidence among the investors, which may in turn attract the investors. In respect of Shari'ah different scholars give different views on sukuk investment which has an adverse effect on sukuk market. Thus, it is recommended that explanation of Shari'ah by all scholars for sukuk investment should be similar in every aspect of sukuk structure. Sukuk market has been emerged not only in Islamic countries but also non- Muslim countries. Different views on Shari'ah can be avoided by formulating a common Shari'ah board internationally or at least in gulf countries.

Another major finding of this study is liquidity risk as a factor which influences sukuk return. Therefore, it is recommended that relevant government authorities of respective countries should maintain financial stability, liquidation, law enactment with respect to liquidity risk. Laws in favor of sukuk should be motivated

periodically. Further, to encourage a secondary market for sukuk companies which trade sukuk must show significant performance in the financial market. Government of these countries should take necessary measures to provide a conducive environment to promote secondary market for sukuk.

From the findings, it could be recommended that market risk covering interest rate risk, inflation rate risk and dollar rate risk; operational risk embracing Shari'ah compliance risk and consumer confidence risk; credit risk incorporating credit risk and maturity risk and liquidity risk engulfing liquidity risk and reinvestment risk should be focused upon for understanding the variation on total return of sukuk.

6.4 Limitations and Future Research Avenues

Like many other research, this study also involves a few limitations. First, although there are different risks and returns in the sukuk structure in the Islamic financial market very few risk categories such as market risk, operational risk, credit risk and liquidity risk have been considered. As indicated in the theoretical framework, these risks are widely used in the sukuk market. Further, there is a boom in Europe and the Gulf countries. Due to these reasons, these risks are more valid and applicable than the other types of risks.

Secondly, this study has not considered non-traded and unlisted sukuk. Information derived from listed sukuk are only available for the global researchers. This is why researcher considers these sukuk for his study. In addition to this, listed sukuk are related to the secondary market.

Thirdly, this study has taken on several approaches. One such approach is country-wide approach that has considered only three countries UAE, Bahrain and Malaysia. These are the countries that lead the sukuk market. They are the pioneers in implementing the sukuk. They are the dominant in the sukuk market.

Fourthly, this study has considered only a well- known and widely used sukuk indices Dow Johns sukuk indices and Nasdaq Dubai sukuk indices. These sukuk are recommended and recognized sukuk worldwide.

Fifthly, this study has cover only a period from 2005 to 2013 on a monthly basis because of the data available in the data stream. When considering the monthly data results are more reliable and valid. When issuing sukuk from 1996 data are available from 2005.

Sixth, the structural sukuk index has not been included in this study due to unavailability of information from market. This type of the sukuk information has not been introduced and published by authorized institutions. Thus, researcher of this study has allowed himself or other researchers to further investigate this study by removing these limitations.

6.5 Implications of this Study

This study has several important implications for the management and policy making level. Since sukuk markets are becoming famous globally, developed countries try to adopt Islamic sukuk for the prevailing financial crisis. Developing countries like Sri

Lanka is also keenly interested in being involved in sukuk market. The Sri Lankan financial market represents continuous fluctuation. When there is fluctuation in the financial market Sri Lankan government has to redesign their financial, interest and exchange policies for implementing risk and return relationship.

A significant number of Islamic banks and clients try to get involved in sukuk transaction. For the purpose of attracting the sukuk investment, in countries like Sri Lanka, risk and return relationship should be studied for making the sukuk market boom. This study will give an impetus for developing countries like Sri Lanka to enter the sukuk market.

The findings of this study will promote sukuk market and help to mitigate different risks of market risk, operational risk, credit risk and liquidity risk involved in the sukuk structure. Risk is a major factor for determining the attractiveness of the return from the point of view of the investors.

Future investors or business people may become aware about these risks for secure sukuk investment and transactions. Business people are entrepreneurs who are keenly interested in their return. When there are return loyalties they may be concerned about their return rather than investing in the other financial investments.

This study helps to provide a remedy for global financial crisis in the conventional market. This is because, due to the collapse of conventional financial market, conventional financial market sought to derive a new mechanism for recovering from financial crisis. Therefore, studies have to be conducted to take advantage of this

sukuk market. During this period, this study is important. Since the sukuk market is collapsed this is an important alternative for the sukuk market.

The study serves as an alternative for the collapse of conventional financial market. This study assists governors of central bank of different countries to take monetary and financial policies at the policy level. This study considers the exchange risk, inflation risk and other varieties of risk. Thus, exchange and interest rates are determined by the Central bank of particular countries. Thus, micro level investors may be attracted by not only micro policies, but also by macro- economic policies for their safe investments. Thus, a sukuk market is a major dominant market in almost all countries central bank has a major obligation for knowing the risk return relationship in every country.

Further, this study is implicable at macro level so that exchange risk, inflation risk, interest rate risk etc. can be resolved by macro factors. The results of this study, promote to find a way of risk management for sukuk issuers to avoid or mitigate the rising risks. Further, this study gives a crystal clear description for present and potential investors. If companies are aware of the risk, return relationship at the right time they must be able to implement their investment at right cost which seems to be efficient.

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